# FEEDSTUFFS

*The Weekly Newspaper for the Feed Industry*

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## *Broiler Industry Digs Out from Under Devastating Storms*

A bulldozer operator in Delmarva comes to grips with the unfamiliar task of plowing a path through 4-ft. snow drifts so broiler growers can get their tractors and trucks into action to haul feed to their chilled, starving birds.

A Georgia broiler producer lights a smudge pot to keep his birds from freezing to death, then battles a blaze, caused by the smudge pot, as those same birds burn to death.

Tons of ice and snow piled high atop a broiler house crush hundreds of birds as the roof collapses.

Governors of Georgia and Arkansas ask President Eisenhower to declare certain counties of their states as disaster areas so federal funds can be provided for storm-damage relief.

Twenty-five thousand incubated

(Turn to STORMS, page 113)

## Fire Levels Iowa Supersweet Plant

ESTHERVILLE, IOWA — The Supersweet Feeds mill, elevator and warehouse here were destroyed March 4 by a fire which completely leveled the familiar landmark in less than three hours.

Supersweet Feeds, a division of International Milling Co., had operated the plant since 1956, when it was purchased from the Honeymead Corp.

Volunteer fire departments from Estherville, Armstrong, Wallingford,

(Turn to FIRE, page 117)

## Wirthmore Buys Maritime Stores

WALTHAM, MASS. — All retail feed stores in New York formerly owned by Maritime Milling Co. have been acquired by Wirthmore Feeds, Inc., it was announced this week by Granville M. Bond, Wirthmore president.

(Feedstuffs reported Feb. 20 that Maritime was closing its feed mills at Buffalo, N.Y., and Seaford, Del., following the termination of financing of Maritime by a trust company.)

Mr. Bond announced that along with the acquisition of the Maritime retail outlets, a number of former Maritime sales representatives, together with a group of independent feed dealers, joined the Wirthmore

(Turn to WIRTHMORE, page 117)

# Delaney Clause Sharply Rapped at GFDNA Event

By GEORGE L. GATES
Editor of Feedstuffs

KANSAS CITY—The controversial Delaney clause of the food additives amendment and certain regulatory activities of the Food and Drug Administration were sharply criticized here by a former assistant secretary of agriculture, Dr. Earl Butz, dean of agriculture at Purdue University.

Dr. Butz, who spoke at the opening general session of the Grain and Feed Dealers National Association convention March 7, declared that the "zero tolerance" feature of the Delaney section of the law is inconsistent with generally accepted practice throughout nearly all phases of our way of living, and it needs amendment.

The convention attracted registration of 942 grain and feed men—the largest in eight years. Concerned greatly over the industry's situation

Additional reports on the Grain & Feed Dealers National Assn. convention appear on page 4.

in regard to the new Uniform Grain Storage Agreement now being negotiated, FDA matters and other problems in dealing with "big" government, the delegates had ample reason to turn out in force.

The general meetings on March 7-8 were preceded by three days of committee and other sessions at which specific problems were examined in detail and policy discussions took place.

**"Sensational" Action**

Referring to "sensational" regulatory action taken against cranberries and hormone-implanted chicken, Dr. Butz said, "Needless damage has been done to important agricultural enterprises, if not to the whole food industry. Millions of consumers have drawn the inference that some food producers and processors are 'kind of a culprit,' trying to pull a fast one on consumers.

"This attitude often reflects unfavorably on the whole food industry, when as a matter of fact, con-

(Turn to GFDNA, page 7)

# Grain Bank 'Here to Stay,' Mutual Millers, Dealers Told

By PAUL L. DITTEMORE
Feedstuffs Staff

BUFFALO — Operation of a grain bank by a feed mill should not be regarded as a separate and distinct development but as one of a number of interacting changes that have affected the feed industry and feeding greatly during the past few years. It is a development which has grown rapidly and is "here to stay."

Glenn R. Siler, manager of the Check-R-Mix department of the Ralston Purina Co., St. Louis, told members of the Mutual Millers & Feed Dealers Assn. that the "grain bank plan is part of a whole package of technology which I believe has been responsible for the tremendous strides we have made over the past 10 years in obtaining greater efficiency on more farms and higher volume per manpower unit."

Mr. Siler's address, "The Grain Bank Has Come of Age," was the feature of the Mutual Millers' winter meeting held March 9 at the Statler-Hilton Hotel. In addition to tracing the growth and future of the grain bank—where the farmer stores his grain with a nearby mill and then withdraws it ground and mixed with supplement—Mr. Siler offered several suggestions on sound operation by the dealer of a grain bank.

The "package of technology" of which grain banking is a part, said Mr. Siler, includes: (1) receiving grain in bulk, (2) maintaining grain quality standards, (3) drying of grain for grain bank storage, (4) modern formulation of balanced rations, (5) development of entire feeding programs, (6) receiving and handling commercial concentrates in bulk, (7) storing bulk finished feeds in overhead bins, (8) bulk delivery, (9) self-feeding of complete rations.

Grain banks are unquestionably growing in number in grain areas, Mr. Siler noted. In fact, one forecaster said the number is doubling each year.

"Just think of the thousands of bushels of privately owned storage

(Turn to GRAIN BANK, page 117)

## *Poultry Specialists Warn Against 'Over-Adjustment' in Egg Industry*

Concern with the "over-adjustment" in egg production plans this spring was indicated this week in comments by agricultural economists and others.

Some cut-back in the egg-type chick hatch is called for, one economist observed, but there also is danger in over-adjusting to the extremely low egg prices of 1959.

Established poultrymen were being urged in some areas to raise their customary number of egg-type chicks this spring and to start them as soon as possible in view of the prospects for improved egg prices as a result of the indicated cut-back.

While there was a sharp reduction in the early hatch of chicks, some observers pointed out that such a big cut was not likely for the season as a whole. The January-February reductions were termed unrealistic, and regaining of some of the normal hatchery volume was indicated for the main hatching season because of more strength in the egg market and recognition that the cutback was too deep.

Don M. Turnbull, executive secretary of the American Poultry & Hatchery Federation, noted in a federation publication that the chick buying intentions report showed less or no reduction in southern and western areas.

"Sharp pencil pushers in these areas," he said, "figure they can still make a profit with the larger flocks even at these prices, and there will be investor money available.

"Look for feed companies to be a factor in chick sales this year. Either they'll induce farmers to put out

(Turn to EGG INDUSTRY, page 116)

## FEEDSTUFFS *Features This Week*

**SWINE FEED FORMULAS**—Predictions on what's ahead in swine feed formulas are given by a college nutritionist in an article on **page 26.**

**PELLET HARDNESS**—A discussion of present techniques and tests to measure pellet hardness starts on **page 38.**

**NUTRITIONAL RESEARCH**—A summary of a five man symposium on the use of disciplines in nutritional research starts on **page 72.**

**"PACKAGE DEAL"**—An Iowa feed miller who lumped his charges for grinding, mixing and pelleting into one fee, tells the results on **page 86.**

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## Rubinoff Co. Sold to Son-Mark Industries

VINELAND, N.J.—The 54-year-old Jacob Rubinoff Co., poultry feed manufacturing firm, has been sold to Son-Mark Industries, Inc., Philadelphia, Pa.

Edward G. Rubinoff, son of the firm's founder, Jacob Rubinoff, has been named general manager. Samuel Bress, Ventnor, and Harry Matlin, Vineland, the other principals in the firm, will stay on for the immediate future in their capacities as sales and production chiefs.

Son-Mark Industries is a stock holding firm whose varied interests include ownership of a chain of retail furniture stores in upstate New York, a food brokerage concern, a finance company and sales promotion operations.

Abe E. Goldman, president of Son-Mark Industries, emphasized that no changes are contemplated in the operations of the Jacob Rubinoff Co.

"None of the personnel, nor the policies which have been responsible for the growth of this company will be affected by our acquisition of the firm's stock," Mr. Goldman said.

"We intend, however, to help Mr. Rubinoff," he added, "to incorporate new merchandising and production facilities which will accrue to the

(Turn to RUBINOFF, page 113)

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**The regional circulation of this issue is concentrated in the southwestern states**


## *Top of the Hopper*

**LOW MARGINS AND LARGE** capital and credit requirements for larger, more efficient farming operations are among the reasons for contracting arrangements and integration in agricultural production. Some comments on this situation were part of a talk by Oakley Ray, director of market research for the American Feed Manufacturers Assn., at the Pacific Northwest Farm Forum.

Investment varies among regions and types of farming, but the average investment for an efficient farm unit today is perhaps $100,000. A Purdue University study indicated that the capital investment for several hundred Indiana farms averaged $90,000, with $200,000 investments not uncommon.

Also, Mr. Ray noted, farm operations are largely family owned, which means they have to be refinanced each generation. If there are four children and a $100,000 farm, this means a $25,000 inheritance for each and $75,000 that must be obtained from other sources by the child taking over. This is a serious problem, Mr. Ray pointed out. It will become even more serious as farm size continues to increase. During the past 10 years capital requirements per farm have doubled, and there is no indication that the rate of increase is diminishing.

"It appears that the large capital investment required for producers is going to be of increasing importance," Mr. Ray told the forum audience. "Some method of vertical integration is one possibility which offers a partial solution. I am not predicting whether it is the solution that we will choose in the long run, but it does solve some of the producer's credit problems by providing capital from other sources. Also, it takes a very able man to do an efficient job of managing these large farm operations, and vertical integration usually offers some management assistance. I am sure that it will become more and more difficult to maintain our traditional pattern of farm owner-manager-operator all wrapped up in one individual."

**WITH THE TREND** towards processing of feed closer to the user, some larger feed manufacturing companies are emphasizinz concentrate mixing and grain banking at the local level. Some, whether going mostly through dealers or not, are getting smaller plants closer to points of use. Some have "satellite" mill programs, with concentrates or premixes going out from the terminal plant.

One feed man observed the other day that he thought the direction for some manufacturers would be to acquire or build still more small mills which would serve nearby feeders directly. He was talking in terms of relatively inexpensive plants which would "compete directly with the local or custom mill."

Also, some, instead of just trying to distribute feed over large areas through traditional methods, might acquire mills in particular localities where they feel certain types of programs—perhaps in some cases coordinated or integrated set-ups—would work and concentrate on doing a specific type of job in that specific locality.

**PERHAPS THE FEED INDUSTRY** should be giving more thought to the possibility of using its facilities to make complete-ration foods for humans. As part of a talk at the Virginia Nutrition Conference, Dr. R. W. Engel of Virginia Polytechnic Institute pointed out that as persons in government have considered ways of feeding the human population in event of wartime disaster, the use of complete rations such as are fed to animals has been discussed. Most animal feeds, Dr. Engel indicated, are not digestible

(Turn to TOP OF THE HOPPER, page 118)

# How's Business?

AN EVERY WEEK REVIEW OF FORMULA FEED BUSINESS VOLUME, INCLUDING PRICE, SUPPLY AND DEMAND TRENDS

**A definite upturn in formula feed sales was evident this week. While volume this week was only a little better than last week in many parts of the nation, manufacturers and dealers in the Southwest and Southeast reported they had rather brisk trade stemming from several factors—severe weather conditions, pickup in broiler feed and improved livestock prices. Dairy and beef cattle feeds and hog feeds were reported to be greatly improved in sales in many regions of the country, but, except for the southern states hit by abnormal snow and ice storms, poultry feed movement was still slow. The wholesale feedstuff price index edged up to 78.6 compared with 78 the previous week and 87 a year earlier. The feed-grain index advanced .8 to 64.8 this week, as against 65.1 a year ago. The hog-corn ratio, based on Chicago prices, continued to rise and was 12.9 this week—.3 above the week before, but still slightly under a year earlier. (Feed markets in detail on pages 114-**

## Northwest

The degree of improvement this week's formula feed business gained over last week's ranged from "slightly better" to "very much better" in comments voiced by representatives of manufacturers in the Northwest.

Men in the trade gave these reasons for this week's feed sales volume being above that of the week before:

1. The time of year has arrived when feed business in the northwest usually takes its late winter-early spring upturn.
2. Cold and snowy weather has stimulated feed consumption.
3. Improved egg, hog and beef cattle prices have encouraged formula feed consumption.

Movement of dairy and hog feeds seems to be holding up quite well in this region, but poultry feed volume still lags behind. Feed manufacturers believe egg prices will have to improve still more to bring about any substantial increase in chick numbers.

Most mills were reported to be running ahead of last week's schedules, but the heavier load has not been great enough to warrant the addition of more manpower or hours. Order backlogs have not yet entered the picture.

Prices on feeds containing millfeeds and animal protein feeds were expected to be marked up because of trends in the current ingredient market.

## Central States

Demand for mixed feeds appeared to have picked up to some extent during the week ended March 9. While it was not really aggressive, a number of manufacturers were advising that it matched up well with the corresponding week in 1959 and this is the first time that this has happened in 4-5 months.

Sixteen-dollar hogs returned to the market this week. This is the first time that a top this high has been hit in Chicago in just about eight months. A situation such as this can easily be responsible for some further improvement in the demand for hog feeds.

## Southwest

Formula feed business in the Southwest continued to show improvement this week. More mills are expanding operations to six days while the average for the area could be termed a strong 5-day run. Mixers are inclined to run the extra day this week to take care of demands for spot shipments. Some sources reported a fair backlog of orders into next week.

Late cattle feed business is responsible for some of the improvement. Heavy snows and cold weather were proving the stimulus to this line. Hog feed still provides a large share of the run, however all lines are sharing in the improvement. Better feeding ratios are held partly accountable for the improvement and lend an encouraging note for better spring business.

Ingredients were mixed for the week but were generally higher and there should be some higher price lists. Ingredients showing the biggest increase for the week were millfeeds and cottonseed products while soybean meal and alfalfa both posted small declines.

## Northeast

The tempo of sales quickened a bit on the formula feed market as a better feeling prevailed. The improved tone was generated by "fireworks" in millfeeds and it was thought that their strength might encourage rises in other ingredients. The trade looks for a continuation of the sales upturn next week.

The outlook for end products also was better. Eggs firmed up and supplies in some areas were short of demand. Broilers held up fairly well.

The retail price of milk could rise in the Niagara Frontier and Rochester areas under a bill passed by the New York State Assembly which would allow milk dealers to petition to the state agriculture commissioner for a price increase. The commissioner would be empowered under the bill to raise prices only after holding a public hearing. The bill applies only to these two areas—the rest of the state's milk market is controlled by federal order.

The sales pattern remained unchanged last week. There still is a great amount of dairy feed mix being sold. Egg mashes did well and some breeding and broiler feeds showed up in the tonnage.

The ingredient market was somewhat mixed during the week.

## Southeast

The Southeast this week was hit by a second blizzard which is causing undue damage to the north Georgia broiler area. According to late reports, the governor of Georgia was going to ask the President for federal aid for 21 north Georgia counties.

All roads are impassable and the National Guard has brought out heavy equipment trying to clear ways for poultry and cattle feed to be delivered to the stricken areas.

Offerings of broilers will not meet demands, and prices remain firm at 18@18½¢ lb., f.o.b. the farms.

Shortage of roughage feeds in Mississippi has caused a tremendous demand for cottonseed hulls for immediate shipment. Prices have advanced as much as $12 ton over prevailing prices 30 days ago, with very few hulls being offered.

(Turn to MARKETS, page 119)

## Unidentified Factors Will Be Discussed

CINCINNATI—Talks on unidentified factors will be among those presented March 23 at the 15th Distillers Feed Conference here at the Sheraton-Gibson Hotel.

"Recent Studies on Organic and Inorganic Unidentified Chick Growth Factors," will be discussed by Dr. M. L. Scott, Cornell University. Dr. J. R. Couch, Texas A&M College, will discuss, "Progress Report—Isolation of an Unidentified Factor from Corn Distillers Dried Solubles."

Other topics and speakers will include: "The Food Additive Amendment and Its Importance to the Feed Industry," W. E. Glennon, president, American Feed Manufacturers Assn.; "A Summary of Growth and Reproduction Studies with Dogs Fed Diets Containing Corn Distillers Dried Solubles," Dr. Robert Wanner, Cornell University; "The Potential of Fat as an Energy Source for Fattening Beef Cattle and Sheep," Dr. Robert Grainger, University of Kentucky; "Vitamin $E_1$ Requirement of Breeder Hens," Dr. Henry Fuller, University of Georgia; "The Value of Different Protein Supplements for Milk Production," Dr. J. K. Loosli, Cornell University; "Mineral Interrelationships in Swine Nutrition," Dr. W. M. Beeson, Purdue University; "Factors Influencing Feed Intake of Swine," Dr. D. V. Catron, Iowa State University, and "Energy Measurements of Poultry Feedstuffs," Dr. L. D. Matterson, University of Connecticut.

## 'Apprehension, Gloom' About Southern Egg Industry Reported

ITHACA, N.Y. — "Apprehension or downright gloom about the future of southern egg production" was observed by a northeastern poultry expert on a tour of southern and midwestern areas.

Dr. John C. Huttar, director of poultry industry relations for the Co-op G.L.F. Exchange, Inc., gave his observations and views in a recent issue of G.L.F. Week, the organization's publication.

"The extra volume which they (southern producers) contributed to a market that was pretty well in balance depressed it to record lows," said Dr. Huttar.

Dr. Huttar blamed the gloom and apprehension mainly on two factors —low egg prices and poor marketing.

**Debt Load Cited**

Dr. Huttar noted that many of the flocks were on new farms, with new buildings and equipment . . . "and a debt load."

"It is this debt load that turned the trick," he said. Dr. Huttar maintained that had egg prices stayed at 1958 levels, "their dreams might have come true. On 20-25¢ egg prices, which they got for too big a portion of their total production in 1959, the debt load proved to be the final straw, if not a millstone, for many."

He also noted that many of the promoters didn't start thinking seriously about where and at what price they could sell the eggs until they actually had them. "As a result, production losses have been heavy—heavier than here in the Northeast," he said.

However, he noted that southern producers are now shrinking volume of production considerably and are approaching their marketing problem more intelligently.

He lauded the southerners as good producers and "something that we must definitely reckon with in the future." He pointed up the need for northeast producers to improve management and marketing practices also.

## Chicken Now (Hot) Dog's Best Friend

ITHACA, N.Y.—A hot dog with no pork, beef or veal has been developed at the New York State College of Agriculture, Cornell University.

It's made from chicken.

Prof. Robert Baker, under whose direction the project was carried out, describes the new food as "similar in taste to a real hot dog." It will be on display at the university's Farm and Home Week, March 22-24, along with more than a dozen other new products made from chicken and eggs.

Developed jointly by the agricultural economics and poultry husbandry departments, the chicken hot dog is reported to cost less than the conventional variety. At the same time, say its creators, the new hot dog is at least as nutritious as the old fashioned kind.

It hasn't yet been named. "Chicken dog" and "hot chicken" don't quite fill the bill; there's more to it than just meat. The ingredients include, besides chicken, poultry seasoning, dried skim milk, soya and fat. In processing, the meat is cut into particles the size of a grain of sand by a blade that whirls 5,000 times a minute. Then the remaining ingredients are mixed in.

Other "convenience items" made from poultry and eggs to be on display during Farm and Home Week include a hamburger made of chicken; a chicken loaf similar to baloney but cheaper; broilers with barbecue sauce already in the package; French toast that can be heated in a toaster; a spread made with chicken and egg albumen, and Easter eggs that can be put on the market fully cooked and colored.

The egg products were developed following a Cornell survey which showed that many people don't have time in the morning to prepare breakfasts that require cooking.

## Volume of Eastern States Exchange Up By $2.8 Million

WEST SPRINGFIELD, MASS.—Total volume of business by patrons of Eastern States Farmers Exchange during 1959 was $89,955,130, announced W. D. Milsop, general manager, to the members attending the 42nd annual meeting of the cooperative March 5.

Business volume exceeded the previous year by $2,852,080. The increase was due to the addition of egg marketing in New England late in the spring of 1959, he stated.

"The combination of flood, strike, fire and depressed poultry prices posed a stern test to the organization, but nevertheless it was another good year," Mr. Milsop said. "Although several supply departments showed strong increases, the long strike at the Buffalo and Huron feed mills caused a setback in feed distribution. However, distribution of feed supplements increased 20% over 1958."

Patronage refunds from 1959 business will be lower this year than last. These refunds—to be mailed later this spring—will total $1,559,727, a sum equal to 1.89% of the total patron's purchases during 1959, the cooperative's treasurer, Mildred Pike, told the annual meeting. She explained that no patronage refund was

(Turn to EASTERN STATES, page 7)

## Memphis Oilseed Meal Futures Prices Varied

MEMPHIS, TENN.—Oilseed meal futures prices were irregular on the Memphis Board of Trade the past week, compared with a week earlier. There was a strong trend in increased turnover in cottonseed oil meal, with the cash article in good demand. This was stimulated in bigger business in mixed feed for cattle, principal users of cottonseed oil meal, during the prolonged cold spell.

Cash cottonseed oil meal was up about $3 a ton from the week before as the demand grew.

Meantime, soybean oil meal declined on slower demand and burdensome supplies. One pit observer cited signs of overproductivity developing and said the demand was poor for immediate shipment of soybean oil meal.

Cottonseed oil meal activity was stimulated on the futures board in view of the improved cash business.

Dealings for the period amounted to 2,400 tons of bulk solvent cottonseed oil meal and 1,500 tons of unrestricted soybean oil meal.

Memphis basis soybean oil meal closed March 8 25¢ lower to 50¢ a ton higher, unrestricted soybean oil meal unchanged to $1.35 higher and bulk solvent cottonseed oil meal unchanged to $2.25 higher.

## *Feeding Department Manager Appointed*

ST. JOSEPH, MO. — Manager of the new feeding department formed by Dannen Mills, Inc. (Feedstuffs, March 5) is Duane Putnam, whose latest position before joining Dannen was with the CGF Grain Co., Atchison, Kansas.

Duane Putnam

Robert Waite, Jr., vice president of Dannen's feed division, said Mr. Putnam will be in charge of Dannen livestock feeding operations at Yale, Okla., at Milliken, Colo., and at Timber Ridge Farm, St. Joseph.

Mr. Putnam, a graduate of Kansas State University, has had feeding experience with the Crowfoot Cattle Co., Strong City, Kansas, and the J. S. Abercrombie Co., Gonzales, Texas.

## Borden to Market Pigmenting Additive

NEW YORK—The Borden Special Products Co. has been named exclusive distributor of "Xan-X," a poultry feed additive designed to increase the pigmentation of chickens and egg yolks, it was announced by Richard G. Sanders, director of sales and marketing of Borden's feed supplements department.

Xan-X, a xanthophyll concentrate, is produced by Dayco Laboratories of North Kansas City. Xanthophyll is a yellow crystalline pigment found in plants. "When fed to poultry, it gives a rich, golden coloring to the skin and a deeper yellow coloring to egg yolks," said Mr. Sanders.

Mr. Sanders said that Xan-X guarantees 1 gm. of xanthophyll per pound, derived from alfalfa and corn, which retains its stability even after pelleting.

The Health, Education and Welfare Department's Food and Drug Administration has examined the product, he said, "and considers it safe for use and not subject to the clearance provision of the Food Additives Amendment of 1958." Borden's will market Xan-X, in various quantities, to feed manufacturers.

Mr. Sanders said with "the product's stability and other characteristics that permit a complete transfer xanthophyll will make Xan-X a sound addition to the pigmenter field."

**TWO JOIN EXCHANGE**

STOCKTON, CALIF. — Two new members joining the Stockton Grain Exchange are Foster Farms, Modesto, Cal., and Reiman Mills, Planada, Cal.

## Range Feed, Cattle, Sheep Conditions In West Decline

FARGO, N.D.—Conditions of range feed, cattle and sheep for 17 reporting western range states March 1 averaged below a year earlier, according to a report released by the North Dakota Crop and Livestock Reporting Service.

Range feed averaged 72% of normal for the 17 states March 1, compared with 76% a year earlier and the 10-year average 1949-58 of 73%.

Cattle in the 17 states averaged 79% of normal March 1, compared with 82% a year earlier and the 10-year average of 80%. Sheep were 81% of normal, compared with 83% a year ago and the 10-year average of 81%.

Heavy snow and extreme cold during the last half of February further increased wintering costs and caused a contra-seasonal shrink in range livestock. The combination of record livestock numbers and high-priced roughage, with only average grazing conditions, has pushed total wintering costs for western producers to the highest level in recent years. Winter death losses for the region as a whole have not been excessive, but losses of early calves and lambs in the central and southern plains have been above average.

Cattle shrink in the central and southern plains, from Kansas south to the border, has been the heaviest in 30 years.

**Feed Reserves Depleted**

Feed reserves have been badly depleted and many individual operators have been forced to buy additional roughage and concentrates. No widespread shortages are expected if spring grazing becomes available at about the usual date. However, the carryover of hay and other harvested forage will be much below the level of the past two years. Soil moisture reserves have increased and the outlook for spring growth is above average.

Grazing conditions in the West show one of the sharpest winter declines on record, with a drop of 8 points between Nov. 1 and March 1. This is more than double the average seasonal loss of three points for this four-month period. Cold weather has delayed growth of grass, weeds and winter grains in all the early pasture areas of the region. Soil moisture supplies are unusually favorable

(Turn to RANGE FEED, page 7)

## BROILER CHICKS PLACED IN 1959 SET MARK

**WASHINGTON—A record number of broiler chicks were placed in 1959 in 22 important broiler-producing states covered by weekly chick placement reports, according to the U.S. Department of Agriculture.**

**The 1,632,818,000 broiler chicks last year were 2% larger than the number placed in these states during 1958.**

**Preliminary estimate of broilers produced in the 22 states during 1959 was 1,566,256,000. These states produced about 90% of the nation's broilers in 1958.**

**Gross income from the production in the 22 states totaled $821,931,000, compared with $890,974,000 in 1958.**

**Weekly placements reached a high of 37,424,000 during the week ending April 4. The low was during the week ending Oct. 17, when 23,755,000 were placed.**

**Georgia led with 319,563,000 chicks placed during 1959, followed by Arkansas with 170,752,000, Alabama with 164,847,000, North Carolina with 142,628,000, Texas with 114,386,000, Mississippi with 111,099,000, Maryland with 98,661,000 and Delaware with 88,585,000.**

# Tough Fight Ahead on New Storage Agreement

By GEORGE L. GATES
Editor of Feedstuffs

KANSAS CITY—The grain storage industry faces some difficult negotiating sessions with government representatives before a new Uniform Grain Storage Agreement is hammered into shape, members of the trade negotiating committee told industry members at the Grain & Feed Dealers National Assn. convention March 8.

Additional committee discussions are planned for Washington next week, and the trade is pointing for a major effort in solving some of the differences between the government and trade ideas at a "town hall" meeting in Kansas City March 30.

Four members of the trade committee comprised the panel which discussed in detail the areas of disagreement with Commodity Credit Corp. at the convention. They were Leland C. Miller, Cedar Rapids, Iowa, chairman of the GFDNA national country elevator committee; S. D. Evans, Sr., Salina, Kansas, member of the elevator and executive committees; Frank A. Theis, Kansas City, president of the Terminal Elevator Grain Merchants Assn., and R. C. Woodworth, chairman of the terminal elevator committee on UGSA negotiations. Pete Stallcop, secretary of the Northwest Country Elevator Assn., Minneapolis, moderated the panel.

While pressures appear to be building up in government circles for a possible reduction in storage rates under the agreement, comments of the panel indicated strong resistance to such a move, particularly if the proposed heavier burden of responsibility placed on warehousemen is made part of the new agreement.

The three sessions held with CCC officials up to now have dealt with proposed changes in the body of the contract, and the issue of rates has not been directly discussed.

"We have not, nor will we agree to anything that won't be carried back to you for approval," Mr. Theis said.

He advised grain men that the town meeting will be the most important one ever held and that they should "understand every word of the proposed agreement."

"Come prepared with reasoning facts," Mr. Woodworth advised.

Estimates of how many grain men will attend the meeting on March 30 range all the way from 800 to 2,000. Approximately half of the men in the audience at the convention indicated they planned to attend.

"You will be amazed at the added responsibility you have accepted through the years as these agreements have changed," Mr. Woodworth said. "And with this in mind, think hard on the rates you will accept."

The draft of the proposed new agreement would impose further responsibilities on warehousemen, the panel pointed out in reviewing several provisions included in the draft.

Of particular concern is the proposed requirement that warehousemen be made responsible for action against grain by the Food and Drug Administration. Mr. Woodworth said that the area of responsibility in this connection has been broadened to include such things as herbicides and other sprays as well as fumigants because of recent FDA enforcement activities.

On this matter it was reported that the latest CCC draft of the agreement is no better than the first, but panel members indicated they felt a common ground could be found.

Additional responsibility of warehousemen operating under the UGSA is involved in a proposed deletion of the language "to the extent to which he is equipped to do so" applying to portions of the agreement, panel members said. Unless this language is restored, every warehouseman will have the same obligations as the best-equipped elevators in the U.S., it was said.

It was brought out that the negotiations this year are being held under a "terrific clamor" generated by the Senate investigation of warehousing costs and rates. Panel members pointed out that information given to the committee has been misleading, and that "the industry has nothing to be ashamed of if the facts are properly analyzed."

Mr. Evans said that the country elevator committee feels that it will resist any attempts by the government to effect any reduction in the present rates on handling or storage "as it is quite evident that certain warehousemen need an increase in handling and storage rates even at the present time.

"It is the feeling of your committee that after the USDA completes its cost study survey including indirect costs of quality deterioration, shrinkage, return on capital and risk, that there will be no basis for lowering of rates either on handling or storage under the present agreement," he said. "If certain proposed changes in the agreement as proposed by government are put into effect over the protest of the grain trade, then the new storage and handling rates should very well be several cents per bushel higher than the present rates."

The position of the negotiating committee on several other sections of the agreement draft also entered the panel discussion. These included the matter of responsibility for breakage of corn, soybeans and grain sorghums and the question of CCC transferring warehouse receipts to a third party without obtaining consent from the warehouseman storing the grain.

## CHARLES FORCE HEADS GFDNA

**KANSAS CITY — Charles Force, Little Brothers, Kalamazoo, Mich., was elected president of the Grain & Feed Dealers National Assn. at the organization's convention March 8. He succeeds Madison Clement, Clement Grain Co., Waco, Texas.**

**Other officers elected are H. V. Nootbaar, H. V. Nootbaar & Co., Pasadena, Cal., first vice president; S. Dean Evans, Evans Grain Co., Salina, Kansas, second vice president, and Sam Rice, Jr., Rice Grain Co., Toledo, third vice president. Alvin E. Oliver continues as executive vice president and Herbert L. Sharp as secretary-treasurer. E. G. Cherbonnier, St. Louis, is feed advisor to the GFDNA.**

## Regulation Inequities Blamed for Railroad Pricing Policies

KANSAS CITY—Railroad pricing policies on grain transportation will continue to change as long as there are inequities in government regulation of transportation, Clair M. Roddewig, president of the Association of Western Railroads, told the directors of the Grain and Feed Dealers National Association at a meeting here March 6.

Mr. Roddewig said that railroads would lower rates to meet the competition of the trucks and barges, but that the industry could not expect to have transit privileges or an orderly market under such a condition.

Railroads face unfair competition from truck and barge lines which are not under federal freight rate regulations, Mr. Roddewig continued. "Transportation of agricultural products by motor carrier and barge lines should be placed under government regulation, or the exemption of such transportation from government regulation should be extended to the railroads," he said.

Within 5 Years:

# Protein Meals 'Out' for Ruminants, Garst Says

KANSAS CITY—Within five years, no cottonseed, linseed or soybean meal will be fed to ruminants.

This flat prediction was made by Roswell Garst, hybrid seed corn producer and cattle feeder from Coon Rapids, Iowa, who achieved fame last year as host to Russian Premier Nikita Khrushchev.

Instead, urea will be fed ruminants as a protein source, he said. Mr. Garst lectured to members of the Grain & Feed Dealers National Assn. at the organization's convention March 7 on the values of urea as a protein meal replacement when fed with molasses, minerals and cellulose from cobs, stalks and stubble.

"You will have to put this product together and deliver it to feeders, or they will do it themselves," he declared. "You may not believe this, but farmers will make you believe it."

Mr. Garst said that because "oil is a drug on the market," oilseed meals have become primary products rather than by-products and therefore must bear a larger share of the crushing costs. Feeding of urea in the type of ration he is feeding provides a cattle diet available for $20 ton less than more conventional cattle feeds, he said.

"One third of our protein meal supplies are going to ruminants, which is robbing chickens and pigs of a feed they can use more efficiently than ruminants can," he said.

Mr. Garst also predicted that fewer soybeans will be raised in the future—"7¢ oil doesn't raise beans"—and that relatively smaller supplies of soybean meal will be available. Also, he said that changes in paint products are reducing demand for linseed oil and will adversely affect linseed meal supplies.

"We must quit feeding the cow or steer and feed the microorganisms. We need a fast carbohydrate and proper minerals. You can simply dissolve urea in molasses and self-feed the mixture to cattle on dry grass, corn stalks, cobs or sorghum stubble. It works fine."

Mr. Garst said that "when you have cheap proteins you can afford to feed cheap cellulose, which is worth two thirds as much as starches." He said that "one in one thousand" ruminants worldwide has starches in its diet, such as buffalo, deer and most cattle in South America. Also, he said sheep are fed very little starch.

"We have been so rich that we've been able to feed starch to ruminants," he continued. "Cellulose is an excellent nutrient if accompanied by protein, and only if accompanied by protein."

Mr. Garst related that early experiments with urea were cautious, and it was felt that only one third of the protein portion of the ration could be made up of urea. However, tests now have shown that this should not be a concern, he said.

"The supply of urea is as inexhaustible as the air from which it is made," he said.

# GFDNA Calls for 'Reasonable' FDA Enforcement

KANSAS CITY—The Grain & Feed Dealers National Assn. called for "reasonable and practical" enforcement of food and drug legislation in a resolution passed at its convention here.

"The objectives of food and drug legislation to minimize danger to public health are certainly sound public policy," the resolution states. "However, the policing and enforcement must be reasonable and practicable.

"As recently applied, the provisions of the so-called Delaney amendment have been an example of unreasonable and impractical enforcement, which if carried forward zealously into the entire field of agricultural chemicals might easily bring chaos into all farm marketing. The Congress should establish a procedure by which the tests of what is good or bad in foods can be competently and objectively refined to agree with practicability, and all interests including producers should have the opportunity to participate in this process."

"In addition, we in this industry should continue to press forward our efforts to keep grain clean and to educate producers to the importance of grain sanitation on farms, and to the importance of keeping any marketed grain free from adulteration by treated seed."

Another resolution deals with handling of grain in hundredweights or bushels. It states:

"The question of whether grains should be traded on a basis of bushels or of hundredweights should be dealt with, as are other trade practices, in the rules of markets and trade associations. The matter should not be forced by unilateral action by government. As one improvement in the use of the bushel as a trading unit, this association recommends general adoption of decimal fractions of a bushel in lieu of odd pounds in scale tickets, warehouse receipts and all other accounting of grain transactions."

The GFDNA also called for efforts to show rail carriers that their long-range position is best served by preservation as much as possible of the rate relationships among various markets in their move to become more competitive in rates.

It also suggests that railroads consider uses of grains as well as their origins by making competitive rates applicable to grain products as well as to grain and offering transit privileges to the maximum practical extent. "Transit is one of the best competitive tools available to the railroads," it states.

## Delmarva Broiler Prices Continue Rise; Placements Unchanged

SALISBURY, MD.—Broiler prices rose more than a cent a pound last week in Delmarva.

According to the Maryland-Delaware Crop Reporting Service, the average price received was 19.98¢ at the farm. The week before the price was 18.62¢. One encouraging note was the improvement over the price a year ago which was 16.92¢.

Nationwide, for 22 important broiler producing states, hatcherymen set 49,338,000 eggs during the week. This was 1% above the previous week but

(Turn to DELMARVA, page 8)

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# 'Unit Approach' to Production Taken at Iowa Swine Meeting

By D. M. BANNISTER
Iowa State University

AMES, IOWA — Feed was mentioned in five out of the eight major presentations at the annual Iowa State Producers Conference at Iowa State University recently, but it was never discussed separately—as feed alone or as to advances farmers could make in the use of feed alone.

The only time the word "nutrition" appeared on the printed program was in the title of the final conference discussion by Dr. H. L. Self and Dr. V. C. Speer, Iowa State University staff members. They held a dialogue on "Nutrition and Management."

About 400 of the state's leading swine producers attended this session, and their "unit approach" to swine production may have been the significant trend of the conference. Feed was never discussed as it was a few years ago—as a means by which, by improving a specific factor in the feed, a farmer could grow more pigs faster or make more money. The attitude toward feed in this conference was "Where does my feeding program fit into my total hog operation —or where in the total operation should I make changes in order to get the most from all factors, including feed?"

In other words, it pointed again to the suggestion that is heard more and more in recent years—"The man with feed to sell can no longer be just a feed salesman. When he talks to the hog producer he needs to sell pork production."

Dr. Speer and Dr. Self talked about feeding as it relates to litter size, pointing to research that indicates a swine breeding herd needs no more than 14-16% protein, but, if the source of about 5% of this protein is tankage and meat scraps, "you get an additional half pig to one-and-a-half pigs per litter." They related feed costs to repeat breeders and figured the overhead costs of keeping a repeat breeder as $8.40 for 21 days.

They pointed out the way one feeds makes a difference as well as what he feeds, and discussed differences necessary in the ration required by hand feeding and self feeding.

The discussion of housing for finishing pigs by Dr. T. E. Hazen, agricultural engineer, took on feeding overtones when feed efficiency appeared as a factor in repaying the cost of confinement feeding facilities. Dr. Hazen pointed out buildings and equipment for swine production normally amount to only about 10% of the cost of producing hogs. Therefore a producer doubling his building and equipment investment is adding only 5% to his total cost.

SWINE MEETING SPEAKER—Dr. M. L. Spear, extension veterinarian at Iowa State University at Ames, introduced Iowa swine producers to the possibilities of "disease free" (specific pathogen-free) pigs at the annual swine producers conference at Iowa State recently. He showed them a model of a "disease free" pig laboratory.

### "Disease Free" Swine

Feed efficiency was an important element in the economics of the "disease-free" (specific pathogen-free) swine program. And Dr. Damon Catron, Iowa State nutritionist, in talking about swine producers' problems, emphasized the importance of complete rations; of proper additives to build efficiency and disease resistance, and controlled rations balanced with adequate protein to help produce lean meat—but set them all in a framework of management and consumer appeal.

"It's time to look at the hog business as a clean, good business," he said, and declared he expected half the present hog producers to go out of the hog business in coming years because they fail to adapt to modern hog production. He foresaw increasing concentrations of hog production in the Midwest with fewer but larger operators producing the hogs.

### Feeding Gilts

"You can manage your swine breeding herd to produce large litters regularly without adding new facilities or investment," Dr. Speer and Dr. Self said.

Dr. Self said tests have shown that good gilts on full feed on pasture averaged about 7.6 pigs per litter. Cutting the daily feed intake to two-thirds resulted in 8.8 pigs per litter and cutting it to one-third of a full feed resulted in about 9 pigs per litter. "The only thing you gain by full feeding a breeding herd," Dr. Self said, "is added cost and fatter sows."

"The protein level and the kind of protein you feed make a difference too," Dr. Speer said. In a Danish test, gilts receiving only vegetable protein produced an average of 4.7 pigs per litter, while those getting animal protein produced 9.3 pigs per litter. "Tests in this country show it doesn't pay to feed a protein level above 14-16% to a breeding herd," he said. "If you include tankage and meat scraps as the source of about 5% of this allowance, you get an additional one-half pig to one-and-one-half pigs per litter."

And, Dr. Self said, among breeds and between lines within breeds there are differences in breeding habits, litter size and length of heat period. "It's important to study the production record of the particular strain of hogs as well as the breed from which you buy your breeding stock," Dr. Self said, "It will pay to choose your breed lines on the basis of these records."

### Feeding System Important

The feeding systems used will make a difference, too, Dr. Speer said. "Self feeding will save labor, but you can afford to self-feed a breeding herd only if you use a bulky ration, high in fiber. Self-feeding works better for gilts than for sows. If you can't formulate and feed such a ration, then hand-feed your gilts and sows to prevent over-eating. You'll get enough

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## G. P. McCarthy Heads Allied's Texas Sales

FORT WORTH—George P. McCarthy has been named regional sales manager of the new Texas regional sales headquarters established at the Allied Mills, Inc., of Texas plant at Fort Worth.

G. P. McCarthy

Mr. McCarthy, formerly a resident of Fort Worth, has been southern regional sales manager for Allied Mills in Atlanta, Ga. Earlier he was an executive vice president and director of research for Universal Mills.

Mr. McCarthy is a past member of the board of directors of American Feed Manufacturers Assn. He is also a past president of the Texas Feed Manufacturers Assn. and helped organize the Texas Turkey Federation, and served as its president.

Mr. McCarthy is a graduate of Texas A&M College, where he was head of the poultry extension service.

## *Program Set for Oregon Meeting*

PORTLAND, ORE.—More than 700 members of the Pacific Northwest feed and allied industries are expected to attend the 29th annual convention of the Oregon Feed & Seed Dealers Assn. March 17-18 in the Portland-Sheraton Hotel.

The two-day program will feature a heavy schedule of business sessions, social events and meetings for feed, seed and fertilizer men. General convention chairman is Dick Cook, Cook-Fredricks Co., Portland, while program chairman is Hal Hardin, Willis Small Feed Co., Eugene.

There will be special fertilizer and seed sessions the opening day of the convention.

Among the featured speakers on the second day of the convention will be John K. Westberg, feed ingredient manager for International Minerals & Chemical Corp., Skokie, Ill., talking on "Why Consider Integration?"

Other speakers in the afternoon, besides Mr. Westberg, will be Dr. A. Conrad Pozz, director of the Northwest Schools, Portland, Ore., talking on "Learning to Live With Yourself," and J. Roger Deas, representative of the corporate offices of the American Can Co., New York, speaking on "From Earth to Sky in the Spectacular Sixties."

Association business will be conducted in the morning, along with an award by the scholarship committee. Also in the morning, Dan P. Allen, committee of natural resources for Oregon, Salem, will talk on "Oregon's Great Natural Wealth," and Howell Appeling, Oregon secretary of state, will speak.

A luncheon is scheduled for the opening day of the convention, with a dinner meeting of the board of governors and a men's social gathering at night.

A "sports luncheon" is scheduled for the second day with Hollis Goodrich, public relations consultant, Portland, talking on sports and athletic personalities. The annual social hour is scheduled the afternoon of the second day after convention adjournment.

### FEEDER DISTRIBUTOR

BLOOMINGTON, ILL. — Appointment of Keith Wilson Hatchery, Inc., Iowa City, Iowa, to act as its distributor in a 10-county area in eastern Iowa has been announced by Pannier Bulk Feeder, Inc. Pannier is manufacturer of bulk bin feeders for both hogs and cattle.

## Broiler Sales Program Gains More Strength

RICHMOND, VA.—The broiler industry's million dollar marketing program, designed to stop dwindling dollar demand for broilers and to take a more aggressive approach toward broiler sales promotion, is gaining strength across the nation, officials of the National Broiler Council report.

"We have found universal agreement among industry members than an aggressive selling effort, such as the one envisioned by the broiler council, is needed immediately," NBC spokesmen said.

Directors of the national broiler promotional organization expressed a strong belief that the finances necessary to get the big effort going will be forthcoming. It was noted that agreements backing the new plan have been signed by various companies in Georgia, North Carolina, Arkansas, Maine, Indiana and Wisconsin and that work is starting in the other major broiler producing areas.

The expanded NBC program includes processor sales aids, a service program for retailers, expanded publicity and public relations, four major advertising campaigns a year for broilers, a crash program to tell the broiler nutrition story to professional groups, stepped up sales efforts in the restaurant markets, continued programs to develop foreign markets and a strong program of market research.

Aimed at increasing the industry's total dollar intake, the program is to be financed through a processor set aside program at the rate of 30¢ per 1,000 lb. of live broilers.

Explaining the critical need for the program, the NBC report notes that with the same per capita production in 1959 as in 1958, the broiler industry nationally took some $93 million less for its products. One industry man summed it up in this way: "If we're going to grow broilers profitably, we've got to grow markets."

## Cyanamid Announces Cyzine Premix 10%

NEW YORK—Burton F. Bowman, marketing director for the agricultural division of American Cyanamid Co., announced the introduction of Cyzine 2-acetylamino-5-nitrothiazole Premix 10% for use in manufactured feed for the prevention and treatment of blackhead disease in turkeys.

Mr. Bowman said, "The new formulation, Cyzine Premix 10%, is the result of Cyanamid's continuing effort to provide the feed industry with more convenient and effective products.

"The new premix gives greater convenience in formulating blackhead preventive and treatment feeds. It also lends itself to the renewed promotion of feeds containing the time-proved drug, 2-acetylamino-5-nitrothiazole."

## Remodeling Feed Mill

LEWISTON, IDAHO—Crews are currently at work at the Lewiston Grain Growers, Inc., mill here on the first stages of an equipment replacement and addition program to increase efficiency of the operation.

Robert Erskine, company spokesman, said four new bins for storage of livestock feed ingredients the mill processes will be built. Cost of the bins will be about $3,000.

New equipment to be installed includes a feed mixer and grinder, an air lift to carry feed from the mill's roller to storage bins, a scale hopper to weigh feed ingredients and a revolving chain elevator to carry ingredients from one floor to another, Mr. Erskine said.

## GFDNA

(Continued from page 1)

sumers should be eternally grateful for the tremendous job our food industry is doing in placing before them an adequate and varied supply of wholesome foods at ever-declining relative costs."

The speaker described how the "zero tolerance" requirements of the Delaney clause tend to thwart agricultural research and thereby threaten the basic strength of the entire economy.

"In our contemporary society, we should encourage research and innovation by every possible means—never discourage it," he declared. "The whole American society is built upon the cornerstone of a productive and highly efficient agriculture." He also stressed that modern agriculture "cannot continue to produce adequate amounts of safe and wholesome food without chemicals."

Dr. Butz described the high cost of chemical research, and he pointed out that "if a company must add to the cost of discovery and development the additional burden and delay of proving complete absence of substances which can induce cancer, even in such small quantities as to be clearly non-toxic, it is small wonder that the current philosophy of law enforcement discourages research and innovation."

Because of scientific advances in agriculture, the U.S. can feed and clothe its entire population with only 11% of its population on farms—a sharp contrast with other nations. This, Dr. Butz asserted, has enabled the nation to employ nine-tenths of its people in other enterprises, which has made possible the fabulous American standard of living.

**Jet Age**

Madison Clement, Clement Grain Co., Waco, Texas, wound up a two-and-a-half year term as president of GFDNA, with a review of association progress and problems.

"We have entered the jet age in the operation of our very businesses," he said. "There are a very few of us who can survive and operate as we did only a few years ago. We have had to streamline our businesses, we have had to strive for a greater volume, we have been confronted with higher labor and, in fact, we have been confronted with ever increasing expenses of operating our businesses.

"In spite of the fact that many, many people have been forced out of the feed and grain business over the past number of years and almost without exception expensive changes have been necessary in order to just remain a part of the industry, we find that we are being criticized by some of our senators and congressmen for making the very changes in the operations of our businesses that were brought about by the action of our lawmakers in Washington.

"We find ourselves subjects of sensational headlines in newspapers.

"There are those who would have the public believe that the government should furnish its own storage facilities to the exclusion of the thing that made this country great, private business.

"Those same people who would advocate abolition of a great industry and that the service be rendered by government would not dare even suggest that the federal government operate the farms of this country, which in essence, would be the same thing.

"There are those who would have you believe that you as grain and feed people are not interested in the farmer, who is your customer, whether you be buying from him or selling to him. How in the world can anyone get such a distorted idea? If for no other reason than self-preservation, we are for the prosperity and well-being of our customers, for without them we have no business at all."

Mr. Clement reported that the board of the association has under consideration a proposal made by the secretaries of affiliated associations that a public relations man be added to the GFDNA staff to assist in providing accurate information to the press on the grain trade.

**"Good Candidate"**

Also appearing on the March 7 program was Sen. Thruston B. Morton (R., Ky.), chairman of the Republican National Committee. The former head of a flour and feed milling company, Sen. Morton was introduced by F. Peavey Heffelfinger, F. H. Peavey & Co., chairman, as a "good prospective candidate for vice president."

Sen. Morton presented a vigorous defense of the Eisenhower administration's national defense program and called for greater participation in politics and government by businessmen. He declared that the farm problem should be met outside of the political arena, but acknowledged that this is not possible.

"We can be thankful that our farm problem is one of abundance," Sen. Morton said. "With 10 to 12 million people we are able to produce food for our population, while Russia must employ 50 million to do the same job."

The senator asserted that the U.S. defense program provides a rounded, balanced deterrent to aggression. "We can't rely on just one type of weapon, and new developments are being perfected as they come along." The U.S., he said, has sufficient bases scattered throughout the world to prevent the Russians from attempting to attack them all at once.

"They could knock out many bases, but they would stir up such a swarm of retaliatory bombers as would change the face of Russia for centuries," he said. "The absolute deterrent is still there."

Sen. Morton said that businessmen should take an active part in politics, not as a selfish move but as businessmen who have ability to help improve government. Help is needed in recruiting candidates ("business too often has prevented its people from running for office"), in organizational work and in helping to inform the electorate, he said. The motivations of party workers have changed, he pointed out, as more government jobs are filled through the merit system. "What we urgently need is people of higher motivations," he emphasized.

**Newsman's View**

Richard Harkness, NBC news commentator, reviewed a number of current situations of national and international importance, including the defense program debate. Concerning this campaign issue, he said that "the country is confused, and Washington itself is confused."

He referred to some measurements of the "missile gap" as "frightening, bare-boned facts." The U.S., he said, by June will have 18 intercontinental missiles while Russia will have 35. By June, 1961, the U.S. will have 54 completed and Russia will have 150 to 200.

"I don't say that we are going to be blown to kingdom come," Mr. Harkness continued. "The Russians are giving top priority to defensive weapons—ground-to-air missiles and combat planes. Russia does not want a war and has no reason to since it is winning the cold war through subversion and economic aid." He said the experts feel Cuba has already gone Communist and raised the question of whether Russia might be campaigning to establish a missile base there.

Mr. Harkness said he feels the Republicans can win the presidential election "if the Russians do not put a man into space orbit and unemployment does not increase." He said he believes that Sen. John Kennedy is most likely to win the Democratic nomination but that he considers Sen. Stuart Symington "a sleeper." On the Republican side, he said Vice President Nixon might "run into a Rockefeller booby trap."

**Progress in Education**

Dr. Clifford M. Hardin, chancellor of the University of Nebraska, described the great progress made by higher education in the U.S. He made particular reference to contributions of the land grant college system which put into practice the philosophy that opportunity in higher education must be kept within reach of everyone desiring it and capable of meeting its standards.

"It accepts the view that the welfare of the nation as well as that of the person is at stake in higher education," he said. Dr. Hardin listed these challenges faced by educational institutions: Higher enrollments, need for more graduate study, research and refresher courses and the necessity for improving the quality of education generally.

"Our future American success economically, internationally, socially, and even morally, will be determined to a great degree by our success in education," he declared.

## RANGE FEED

(Continued from page 3)

in Arizona, New Mexico, Texas, Oklahoma and Kansas, and a turn to warm weather will bring on an abundant supply of spring forage in this important grazing area.

**Spring Feed Outlook**

The outlook for spring feed is favorable in all other parts of the West but last year's dry sections in California, the central inter-mountain states and northern plains will all need further generous moisture supplies to support a normal forage growth.

Range cattle and calves lost considerable weight during the past month from the effects of snow and cold weather. Shrink was particularly heavy in the southern and central plains where drifting snow covered range forage and made supplemental feeding operations difficult. Marketings of both fat and feeder stock have been delayed because of disappointing weight gains and blocked roads. Death losses of early calves have been heavier than usual in some local areas but they are not extensive enough to have any significant effect on the annual calving percentage.

Condition of sheep and lambs is above average in only three states—Wyoming, Texas and Arizona. Heavy supplemental feeding and improved moisture on important winter desert ranges limited the effects of adverse weather. Losses of early lambs have not been heavy, except in a few local areas and on the plains. Marketings of early lambs in Arizona are expected to start at about the usual date, but in California the movement will be somewhat late, with less than the usual percentage expected to be in slaughter flesh. Lack of green feed is slowing development of early lambs in Texas.

## Cincinnati Meeting

CINCINNATI — Members of the Cincinnati Feed Club will hold a dinner meeting March 14 in the Cincinnati Club, and hear a talk on "Safety in the U.S. and Traffic Problems in England" by Raymond Clift, executive director, Greater Cincinnati Safety Council. Entertaining will be Pattie Miller, vocalist, and Harvey Brownfield, accordionist.

**KENTUCKY MILL BURNS**

MURRAY, KY. — Thurmond Feed Mills burned March 5, with loss estimated at $60,000, according to Lubi Thurmond, company owner. The loss included six trucks parked inside of the building, a one-story concrete block structure, that was a total loss.

## EASTERN STATES

(Continued from page 3)

earned on products marketed for patrons in 1959.

Mr. Milsop reported that trials with contract broiler growing indicated that this was not suitable for the organization at this time, except on a small scale in Pennsylvania.

Capital expenditures for 1960 have been fixed at $650,000, slightly less than half that of the previous year. Principally this will be used for service center expansions and additions.

During 1959, two new service centers were built, and some were enlarged or remodeled. By the end of the year there were 104 service centers, including the combination major depot and service center opened in 1959 at Detroit, Maine.

**Mobile Mills Increase**

An increase of 18 mobile feed mills and one stationary mill operated by service centers owned by Eastern States took place in 1959. The cooperative now owns 30 mobile units and 31 stationary ones, all connected to service centers.

To facilitate bulk feed delivery, the organization has 96 air-lift units mounted on service center trucks—an increase of 27 during the year.

A new venture is the handling of grain grown in the middle Atlantic states. Some of this is used in local feed mixing, but primarily grains are resold as a service to members.

Feed and grain distribution accounted for 71% of the total Eastern States dollar volume; 13% was in fertilizer and lime; 7% in farm supplies; 4% in agricultural chemicals, and 5%, seeds.

Between April 27 and June 1, six New England egg marketing cooperatives came into the Eastern States organization to form one egg marketing department. Business volume to the end of the year in marketing was $7,451,172.

Reelected president of Eastern States was Jonathan Davis, fruit grower and dairymen of Sterling Junction, Mass.

Also reelected were Mr. Milsop, general manager, and William H. Prigmore, assistant general manager.

## New Antibiotic Feed Supplement Announced

CHARLES CITY, IOWA—Dr. Salsbury's Laboratories has announced a new antibiotic feed supplement, "Strepcillin F-25," which contains streptomycin and penicillin. The supplement is designed for chickens, turkeys and hogs and for feed manufacturing only.

"One of the most effective combinations of antibiotics is found in Dr. Salsbury's Strepcillin F-25," says James M. Keith, merchandising services manager. "Streptomycin and penicillin, together or singly, are active against many bacteria responsible for not only acute, but also subclinical disease."

Active drug ingredients of Strepcillin F-25 are 6.25 gm. penicillin per pound (as procaine penicillin equivalent to 3.75 gm. crystalline penicillin G master standard) and 18.75 gm. streptomycin per lb. (as streptomycin sulfate).

"An analysis of many reports led to the conclusion that a balanced mixture of streptomycin and penicillin would provide as many, or more, benefits than a single antibiotic," say Dr. Salsbury's scientists. "Another important consideration leading to the combining of the two antibiotics was the economy advantage over other antibiotic feed additives."

The announcement lists uses of the product at various levels for growth promotion, disease control and as an aid in production.

# *Methionine Limit Deleted; FDA Acting On Trace Minerals*

WASHINGTON — The Food and Drug Administration has removed percentage limits which were given for methionine in a previously issued list of substances proposed for the "generally recognized as safe" category under the food additives amendment.

Also, it is understood that FDA is reevaluating its trace mineral proposals and that a new list probably will be issued in a month or two. Industry spokesmen and college scientists had filed objections to the FDA limits and restrictions on trace mineral use in feeds as given in a previous list of trace minerals proposed for classification as "generally recognized as safe."

The recent action on methionine followed publication early in February of a supplementary list of substances proposed to be generally recognized as safe. That listing included methionine and methionine hydroxy analog and its salts for use in feed, and limits of 0.0125% were specified.

Manufacturers of methionine products and college and industry nutritionists objected to the listed limitations, saying that they were unnecessary and unrealistic. It was indicated that no upper limit on inclusion of the products in feed was warranted.

Now, in a recent issue of the Federal Register, FDA corrected the situation by deleting the quantitative limit prescribed in the original listing.

Meanwhile, it also is expected that FDA will act on the problem in regard to trace mineral listings. There had been strong objections to the placing of certain limits on trace mineral use in feeds and to restrictions on types of feed use proposed for cobalt and zinc.

It is understood that a new list will be issued to replace the previous list. The new list will include changes in regard to maximum levels and restrictions.

# Purina Aids in 'Test' Egg Program

**By Special Correspondent**

SPRING GREEN, WIS.—The Ralston Purina Co. and a new egg firm formed here are conducting what is described as a test program for the marketing of quality eggs at premium prices in the Madison, Wis., area.

Working with Purina is the Northland Egg Producers, Inc., Spring Green, a corporation formed and owned by 14 producers in the area. The eggs will be sold through food stores at premium prices, above the regular retail market price for the area.

An "egg breakfast" was held in Madison last week to explain the program to agriculturalists, home economists and news media representatives.

Russell E. Thomas, Ralston Purina district manager, said the program was directed at "discriminating egg buyers who want top quality merchandise."

He said that the company was not offering financial backing to the producers, but the producers are on the firm's feeding program and maintain strict management, sanitation and handling in accordance with the company's recommendations. He added that Ralston Purina was underwriting the advertising program for this year as a test proposition.

J. B. Solem, a company district sales representative, said that eggs would be handled by controlled methods "from the time they're laid, to the time they're in the hands of the retailer." To insure freshness,

(Turn to PURINA, page 113)

# Millfeed, Meat Protein Prices Advance Again; Other Ingredients Soft

Millfeed and animal protein feed prices kept right on climbing this week, and their gains were enough to offset losses in other primary ingredients from March 1 to March 8. The U.S. Department of Agriculture's weekly report of average bulk prices on a national basis shows that the index of weighted prices for all feedstuffs advanced .6 during the week ended March 8.

Wheat millfeeds seemed to be in the healthiest position of any of the ingredients. There was good demand for the moderate offerings of these commodities.

Meat proteins were stronger, largely due to lighter offerings and partially due to good demand for both tankage and meat bone meal.

Cottonseed meal made the only advance in the oilseed meal market. Supplies of soybean meal were reported to be more than adequate, and although there was not much selling pressure evident in the market, prices declined in some markets to their lowest level since September. Linseed meal reached a low point early in the March 1-8 reporting period, then recovered most of the loss.

**Average Bulk Prices and Index of Weighted Prices***
**(Dollars per ton)**

| | Mar. 8, 1960 | Mar. 1, 1960 | Change from previous week |
|---|---|---|---|
| **OILSEED MEALS** | | | |
| Prices at prin. mkts.: | | | |
| Soybean meal | 64.05 | 64.80 | — .75 |
| Cottonseed meal | 62.55 | 60.60 | +1.95 |
| Linseed meal | 69.15 | 69.50 | — .35 |
| Copra cake or meal | 72.25 | 72.25 | ... |
| Peanut meal | 55.00 | 55.00 | ... |
| Index | 83.5 | 83.6 | — .1 |
| **ANIMAL PROTEIN FEEDS** | | | |
| Prices at prin. mkts.: | | | |
| Meat meal | 74.35 | 72.75 | +1.60 |
| Tankage | 73.95 | 72.30 | +1.65 |
| Fish meal | 102.00 | 102.75 | — .75 |
| Index | 69.6 | 68.8 | + .8 |
| **GRAIN HIGH-PROTEIN FEEDS** | | | |
| Prices at prin. mkts.: | | | |
| Gluten feed and meal | 45.10 | 47.50 | —2.40 |
| Dist. dried grains | 55.75 | 57.20 | —1.45 |
| Brewers dried grains | 40.25 | 42.75 | —2.50 |
| Index | 72.4 | 75.8 | —3.4 |
| **WHEAT MILLFEEDS** | | | |
| Prices at prin. mkts.: | | | |
| Bran | 42.70 | 40.00 | +2.70 |
| Midds. and shorts | 43.75 | 40.95 | +2.80 |
| Index | 78.1 | 73.2 | +4.9 |
| **OTHER MILLFEEDS** | | | |
| Prices at prin. mkts.: | | | |
| Hominy feed | 41.05 | 40.90 | + .15 |
| Rice bran | 26.00 | 26.50 | — .50 |
| Index | 61.9 | 61.8 | + .1 |
| **ALFALFA MEAL** | | | |
| Prices at prin. mkts. | 56.15 | 56.35 | — .20 |
| Index | 108.1 | 108.5 | — .4 |
| **MOLASSES FEEDING** | | | |
| Prices at prin. mkts. | 21.01 | 21.34 | — .33 |
| Index | 62.5 | 63.5 | —1.0 |
| **ALL FEEDSTUFFS** | | | |
| Index | 78.6 | 78.0 | + .6 |
| **FEED GRAINS** | | | |
| Prices at prin. mkts.: | | | |
| Corn | 39.40 | 38.90 | + .50 |
| Oats | 48.10 | 48.00 | + .10 |
| Barley | 42.10 | 42.00 | + .10 |
| Grain sorghums | 37.40 | 36.40 | +1.00 |
| Index | 64.8 | 64.0 | + .8 |

*Base period of index is 1947-49.
Source: Agricultural Marketing Service, USDA.

## DELMARVA

(Continued from page 4)

3% below the corresponding week a year ago. Settings were up from the previous week in 12 of the 22 states. States showing sizeable increases included Alabama, Maine, Pennsylvania and Maryland.

Chick placements in the 22 states totaled 34,748,000. This was slightly above the previous week but 1% below the corresponding week a year ago. Increases were reported for 11 states compared with the previous week. Largest increases occurred in Mississippi, Maine and California. States with the largest decreases were Virginia and Texas.

# Moderate to Sharp Advances in Eggs

NEW YORK—Here's how the poultry and egg market shaped up during the week ended March 9:

**Eggs:** Moderate to sharp price advances were noted in all areas except the Pacific coast, where the price trend was irregular.

**Broilers:** Snow storms and icy roads throughout much of the nation early in the week completely disrupted normal operations, according to the U.S. Department of Agriculture. The uncertain supply and demand picture was caused by the difficulty encountered in picking up live poultry from farms as well as delivering ready-to-cook birds to market.

**Turkeys:** Trading in ready-to-cook frozen turkeys was generally active, although most sales were of small-lot variety. Any weakness existing at the outset of the week dissipated, and trading was vastly improved, especially in fryer-roasters.

In many sections of the country, weather was the major factor which contributed most to the strong egg prices. Most of the eastern half of the nation reported that adverse weather conditions hampered the movement of supplies.

The top egg price at New York March 9 was 36@39½¢ doz., compared with 30@34¢ a week earlier. On Iowa farms, the price gain was 3@4¢.

Broiler-fryer prices remained steady in Georgia during the week, but dropped slightly in other markets. The Georgia price March 9 was 18@18.75¢ lb. and in Delmarva the price range was 17.8@19.1¢.

# Quad States Meeting Program Announced

SIOUX CITY, IOWA—Plans for the ninth Quad State Grain and Feed Convention March 13-14 at the Sheraton-Martin Hotel have been announced.

Five speakers and a panel discussion are scheduled for the business session Monday. Pete Stallcop, executive secretary of the Northwest Country Elevator Assn., Minneapolis, will lead off with a talk on "Uniform Storage Agreement Negotiations." A. Harris Kenyon, chief of the Minneapolis district of the Food and Drug Administration, will speak on "Administration of the Pure Food and Drug Act."

Oakley M. Ray, director of market research, American Feed Manufacturers Assn., Chicago, will address the group, and Ron Kennedy, vice president of F. H. Peavey and Co., Minneapolis will talk on "Waterways."

Lewis (Jack) Roberts, associate director of the grain division of the Commodity Stabilization Service, will close out the talks.

A panel discussion, featuring all the speakers with Mr. Stallcop as moderator, will wind up the business session.

Presiding officer at the meeting will be C. C. Wickstrom, president of the Sioux City Grain and Feed Assn. Dean Daniels, president of the Sioux City Grain Exchange, will welcome the grain trade and Miles Patton, Nutrena Mills, Sioux City, will welcome the feed trade.

After the business session, the evening's activities begin with a social cocktail hour. A banquet will be held at 7 p.m. with after dinner entertainment provided by comedian Johnny O'Brien.

**RATH BUYS 126 ACRES**

COLUMBUS JUNCTION, IOWA—Plans for a new hog slaughtering facility for the Rath Packing Co., Waterloo, began to materialize with announcement that the firm has completed arrangements for purchase of 126 acres near here.

# Bank Loses $1 Million In Maritime Financing

BUFFALO, N.Y. — The Marine Trust Co. will sustain losses upward of $1 million from its financing of the Maritime Milling Co. which ceased operations Feb. 15 (Feedstuffs, Feb. 20).

Charles H. Diefendorf, chairman of Marine Trust's executive committee, told stockholders here March 9 that the bank had already charged off $1 million of its Maritime Milling loss.

"I wouldn't want to estimate what the loss will be," he said. "We are in the process now of trying to collect what we can out of the picture."

Concurrent with the bank's disclosure of its losses in the mill's closing, James L. Kane, president of the Buffalo AFL-CIO Council, said that organized labor in Buffalo has given up hope of having the Maritime mill reopened. He told delegates at a meeting held March 8 that union representatives are now concentrating on efforts to obtain back pay and other money said to be due the 80 production and maintenance employees who lost their jobs when the mill shut down.

Mr. Kane said money deducted from the workers' wages for credit union payments and union dues had not been paid, nor vacation pay and three days' wages in lieu of notice.

Joseph Duzak, business agent for the Grain Millers Local No. 110, which represented the workers, said that the local had "cooperated in several ways in reducing production costs before the mill operations were ceased."

# Petitions Filed for Insecticide, Antibiotics

WASHINGTON—Recent issues of the Federal Register included Food and Drug Administration announcements of the filing of food additives amendment petitions regarding use of an insecticide and certain antibiotics in feeds.

One of the petitions, filed by Moorman Mfg. Co., Quincy, Ill., asked a tolerance for use of the systemic insecticide Ronnel in cattle feeds. This Dow chemical for cattle grub control has previously been cleared for use as a bolus. New drug regulations also will be involved in the proposed feed use of the insecticide. The food additive petition proposes a tolerance of 2,750 ppm in feed and a zero tolerance in edible portions of cattle.

Another food additive petition was filed by American Cyanamid Co. for use of chlortetracycline in chicken feed for treatment of certain infections. Proposed are a tolerance of 220 ppm in feed and certain tolerances in the chicken.

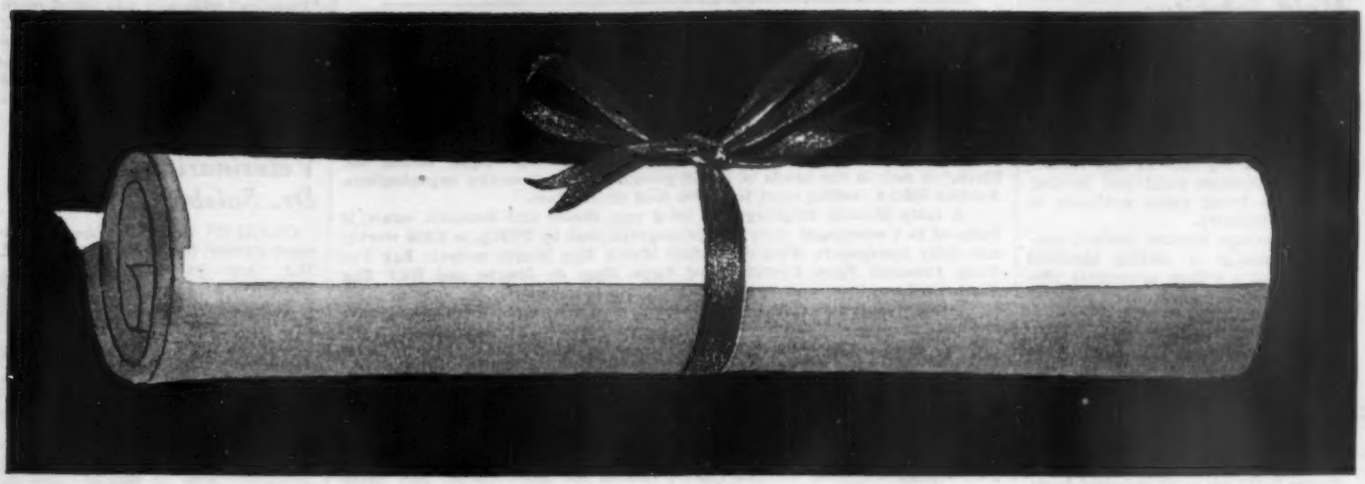
A petition filed by Chas. Pfizer & Co., Inc., proposes a tolerance of 2.2 ppm of oleandomycin activity in chicken and turkey feeds to improve gains and feed efficiency. A zero tolerance is proposed for the uncooked meat.

# Kansas City Club 'Old Timers Night' Reset

KANSAS CITY—The March meeting of the Kansas City Feed Club will feature a tribute to the "old timers" among the members, Richard Shoop, Albers Milling Co., club president, has announced. Originally scheduled to take place at the February meeting, the "Old Timers Night" was postponed when it became necessary to cancel the February meeting due to a heavy snowstorm.

The meeting will take place at the Phillips Hotel March 21 and will begin with a cocktail hour at 6 p.m., preceding a steak dinner.

In addition to honoring long-time members, the program will include a demonstration of firearms safety.



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Zinc bacitracin provides greater stability in the supplement and in finished feeds than the ordinary non-zinc types. In other words, zinc bacitracin gives you full value.

How come ordinary bacitracins don't measure up to zinc? Zinc bacitracin is made by a special CSC process that's patented. Want proof that it's best for your feeds? Write today for all the facts–test data, technical literature and proof of performance. Animal Nutrition Department, Commercial Solvents Corporation, 260 Madison Ave., N.Y. 16, N.Y.

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## *Mold Inhibitor Marketed for Use In Feed Industry*

WILMINGTON, DEL.—A product which its manufacturer says "may double or triple" the storage life of certain feed ingredients and formula feeds through mold and heating control is being made available to the feed industry.

The spoilage control method consists basically of adding specified amounts of a sodium propionate product to formula feeds or ingredients during processing.

Studies at the Texas Agricultural Experiment Station, first reported in 1953, showed that growth of mold is generally responsible for heating of feedstuffs under warm, humid storage conditions. Sodium propionate and calcium propionate, used for more than 20 years by the baking industry to inhibit mold in baked foods, were found in the Texas research to be effective for similar protection of corn meal.

As a result of this work, E. I. du Pont de Nemours & Co., Inc., Wilmington, undertook development of a suitable formulation and commercial recommendations for the feed industry. Now this company is marketing to the feed industry its "Impedex" sodium propionate NF. The addition of up to .4% of this product to feeds during processing is recommended by the manufacturer.

**"Recognized as Safe"**

Sodium propionate has been listed by the Association of American Feed Control Officials as an accepted mold inhibitor, and must be shown on the feed tag when used. Also, sodium propionate was listed by the Food and Drug Administration as a "substance generally recognized as safe" in the Federal Register Nov. 20, 1959.

Du Pont scientists note that all grains, as harvested, are contaminated with mold spores. "Certain types of processing may reduce the spore count substantially," they say, "but storage and handling are quite likely to result in reinoculation." Under proper conditions of temperature, moisture and pH level, these molds begin to grow, causing the feed to heat and also causing off-colors, off-odors and unpalatable tastes.

The trend toward high-energy feeds has intensified spoilage problems because mold organisms can use the extra energy content for growth and production of heat as well as animals can, according to Du Pont scientists. "Also, molasses makes a feed formulation especially susceptible to mold because it increases the initial moisture content and also increases the mixture's pick-up of moisture from the air," the researchers note.

Du Pont says its laboratory studies have included corn meal, brewers wet and dried grains, fish meal, vegetable oil meals, molasses, dog food, horse feed, coastal Bermuda grass pellets and various common types of rations for dairy cattle, beef cattle and poultry.

The degree of protection resulting from various percentages of "Impedex" sodium propionate NF was found to depend on the moisture level, storage temperature and pH of the feed, and the concentration and viability of mold spores present. Du Pont scientists say the effect was improved by reducing the pH of the feed or by adding salt. It was found that with or without "Impedex," feeds remained mold-free "about twice as long at 70° F. as at 90°."

Moisture content of feed, which affected its susceptibility to mold, frequently increased as the feed absorbed moisture from the air.

Du Pont reports that reduction of pH by one point doubled the effectiveness of "Impedex" sodium propionate NF in preventing mold. "But strangely enough," say the company's researchers, "reducing the pH of feeds without 'Impedex' to as low as 3.7 had no effect on heating and molding."

For fish meal, a combination of "Impedex" with salt was found more effective than either one alone. For fish meal which started to heat after six days of storage at 90° F., .2% "Impedex" plus 2% salt increased the heat-free life to 29 days, research results showed.

## NATIONAL EGG MONTH GETS ROLLING

**CHICAGO — National organizations, such as American Farm Bureau Federation, Super Market Institute and other national food organizations, are actively supporting National Egg Month, according to the Poultry and Egg National Board.**

**Eggs are featured this month on the Plentiful Foods List of the U.S. Department of Agriculture. A special USDA mailing, "Eggs 'Round the Clock," is now in the hands of 50,000 grocers and food service organizations. Another USDA mailing went to 80,000 food distributors.**

**A tasty DeLuxe Eggburger of fried egg, cheese and Bermuda onion, is featured in a newspaper story and photograph sent by PENB to 3,000 weekly and daily newspapers. Five distinctive March Egg Month recipes: Egg Foo Yong, Creamed Eggs, French Fried Eggs, Eggs de Jonghe and HEP Egg Sandwich have been sent to 300 metropolitan newspapers.**

**Point-of-sale materials—posters, banners and newspaper ad mats—have been distributed and are now in use in food stores and restaurants. Radio and TV scripts and visual materials have been distributed to thousands of stations. Interviews are being conducted on many radio and TV shows.**

**"Eggs Have Real . . . Three Meal Appeal," the National Egg Month slogan, is being used at the bottom of all correspondence by many firms.**

## *Veterinarian Joins Dr. Salsbury's Labs*

CHARLES CITY, IOWA—Dr. Edward Garner, formerly of Maplewood, N.J., has joined Dr. Salsbury's Laboratories in the veterinary pathology department.

Dr. Edward Garner

He is a 1953 graduate of the University of Georgia, College of Veterinary Medicine with a major in poultry husbandry.

Dr. Garner practiced as an independent veterinarian and in a small-animal clinic before joining Dr. Salsbury's.

## *Utah Firm Named Borden Distributor*

NEW YORK—Appointment of Albion Vet Supply Co., Ogden, Utah, as the Borden Special Products Co.'s exclusive distributor of feed supplements for Idaho and Utah, has been announced by Richard G. Sanders, sales and marketing director of Borden's feed supplements department.

This move will expand Borden's distribution of its feed supplement products through Albion's location and will enable Albion to custom blend micro-nutrients with Borden's basic products to meet local requirements, according to a joint announcement by Mr. Sanders and Harvey Ashmead, president of Albion.

BACK SAVER WITH STEEL TRUCK BODY

SEMI-TRAILER BACK SAVER

SEMI-TRAILER SKOOP SKIPPER

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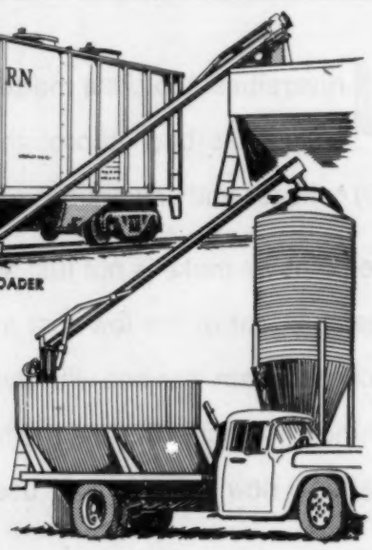

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# SILOTRACIN

## the new silage preservative that uses the antibiotic principle

## *for the very first time!*

Commercial Solvents Corporation has done it again. Pioneer producer of penicillin... first with bacitracin for the feed trade... and first with zinc bacitracin, too. CSC now announces the exciting, new *antibiotic* concept in grass silage preservation – Silotracin!

You may already have heard just how successful Silotracin is. First and foremost, it prevents spoilage. And it puts an end to the hold-your-nose smells of bad silage by eliminating the cause! Fact! Unlike other products which merely mask the odors, Silotracin gets rid of the basic cause – putrefaction. Result: high-quality silage, high nutritive value – along with improved palatability, digestibility and feed efficiency. It does the job *antibiotically*. And at low cost!

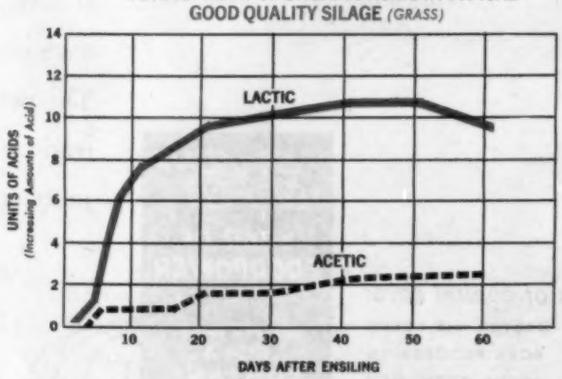
### Its action in silo is selective

Easy-to-use Silotracin, applied directly to forage, quickly establishes the proper level of acidity and the right anaerobic conditions essential to good silage. The *selective, biologic* action of the antibiotic suppresses harmful bacteria that make poor silage, gives helpful bacteria the environment they need to make best-quality silage.

### It does the job in the critical first 72 hours

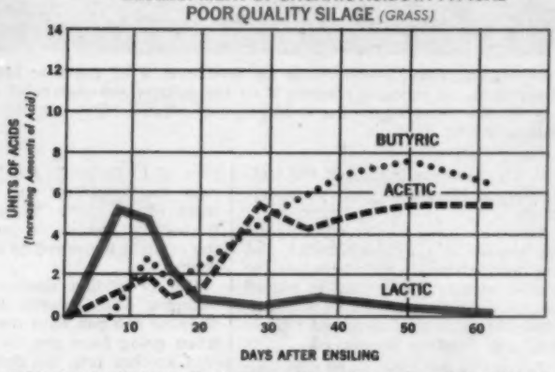
Good grass silage is made in the first 72 hours or it isn't made at all. It's during this critical "now or never" period that Silotracin does its job. It permits the lactic acid-producing bacteria, responsible for high-quality silage, to flourish. It checks the butyric acid-producing bacteria that ruin silage.

DEVELOPMENT OF ORGANIC ACIDS IN TYPICAL GOOD QUALITY SILAGE *(GRASS)*




*This is the "picture" of good silage. The lactic acid is formed quickly – in the first 72 hours – and is sustained at high level throughout the storage period.*

DEVELOPMENT OF ORGANIC ACIDS IN TYPICAL POOR QUALITY SILAGE *(GRASS)*




*This is the "picture" of poor silage. Butyric acid, with its offensive odor, predominates. The lactic acid content is negligible and the feed value of the silage is seriously reduced.*

FEED EFFICIENCY OF SILOTRACIN-TREATED SILAGE IN MILK PRODUCTION
(Rusoff-LSU)

| | SILAGE | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| Average for 3 periods of 14 days each, 12 Lactating Holstein Cows | Silotracin | Molasses | Bisulfite | Control |
| Average lbs. of silage consumed per lb. of 4% Fat Corrected Milk | 2.5 | 2.8 | 2.6 | 3.2 |

*In this test, the Silotracin-treated silage was more efficient than the other silages in the production of milk. Less Silotracin-treated silage was consumed per pound of milk produced and this can be presumed to be the result of a greater amount of digestible nutrients in this silage.*

## Silotracin passes all the tests

Silotracin has been tested for several seasons both in the laboratory and in college field trials. All the results show that with Silotracin, high-quality silage can be expected every time in any type of silo — upright, tower, bunker or trench. It preserves forage nutrients over a wide range of harvesting and storage conditions. It reduces 3 kinds of silage loss: surface spoilage, nutrient loss and loss of dry matter. Excellent results have been obtained with such grasses as Brome, Orchard, Johnson, St. Augustine and Bermuda. It has also been used with complete success on clover and alfalfa and on sorghum, oats, millet and corn. Silotracin is non-corrosive, cannot harm machinery or equipment. It's completely safe for humans and animals.

## Silotracin=Better silage =Better milk production

Animals offered a choice showed a preference for silage treated with Silotracin. Excellent palatability has been reported by Rusoff of Louisiana State University. Improved digestibility has also been noted. The Silotracin treatment seems to hasten the breakdown of cellulose so that the rumen bacteria can finish the process both more quickly and more completely.

## Silotracin is easy to use and attractively priced

It's added directly to forage by blowing in at the silo or chopper. It can also be broadcast by hand directly on the wagon. Silotracin is a complete preservative by itself, no additives of any kind are needed. You can sell this new, advanced silo preservative *profitably* at a price most attractive to your customers and competitive with all other products on the market today, new or old!

## Silotracin available to feed manufacturers in 2 forms

You can now service your customers' best interests — and your own — by selling the antibiotic concept of preserving silage. Silotracin is available in 50-pound multi-wall bags in ready-to-use form. Each pound of ready-to-use Silotracin supplies 1 gram of specially processed *zinc bacitracin* on a soy bean mill feed carrier. A Silotracin concentrate is available for use by manufacturers who want to package their own ready-to-use silage preservative. Write for all the data on Silotracin.

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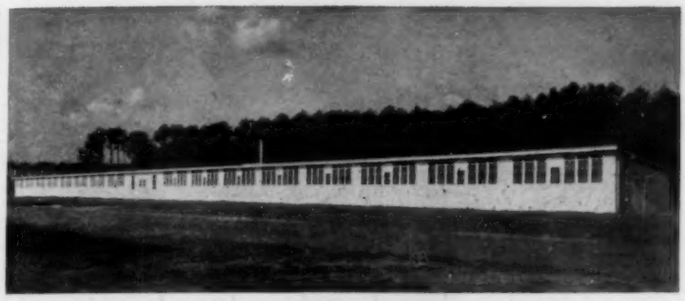
***new product-***
***new selling opportunity-***
***SILOTRACIN!***

INTERIOR VIEW—This is an interior view of one of the 32 pens in the new broiler research house at the University of Maryland Agricultural Experiment Station's poultry sub-station near Salisbury, Md. Each pen holds 175 birds. Note the removable side panels that form the pen.



HOUSE EXTERIOR—Shown is an outside view of the new 340-ft. broiler research house recently completed on the poultry sub-station of the University of Maryland Agricultural Experiment Station. The sub-station is near Salisbury, Md.

# First Test Results In New Maryland Facilities Reported

By Special Correspondent

SALISBURY, MD.—New experimental facilities at the University of Maryland Broiler Research Farm here have just yielded their first test results.

A new house containing 32 pens has doubled the capacity of broilers at the farm. Likewise, the number of factors which can be studied at one time has been doubled.

The first batch of birds studied in the new house came off test recently, during the Broiler Field Day. The test was unique, according to Dr. C. S. Shaffner, in that in addition to considerable data on feed growth and feed conversion, the birds were followed through to the dressing plant to get information on dressing percentages, condemnation rates, market grades and general quality factors. Dr. Shaffner is head of the University of Maryland poultry department.

"Because there was so much interest shown in the observations and the comparisons; and because the broiler strains being studied varied enough in the characteristics measured, the same trial warrants repeating," Dr. Shaffner announced.

Results of the trials show that Delmarva is blessed with several sources of protein to use in broiler rations. And any of these home-produced products can be substituted, depending on the prices.

"There is no appreciable difference in the rate of gain or the average weight at selling time, the current study indicates," said Dr. Gerald Combs, university poultry nutrition specialist.

These locally produced protein sources are: Poultry by-products meal; fish meal (menhaden, 50%); fish solubles, and crab meal.

**Test Results**

The highest average weight was 3.06 lb. and the poorest was only .09 lb. lighter in weight. One protein source produced broilers with a feed conversion of 1.99. Others ranged as high as 2.05, only .06 lb. feed difference.

The protein sources which gave the lower average weights did not necessarily give the poorer feed conversions. This experiment indicates a feed mill can select the cheapest sources available without affecting weight or feed conversion.

Under study was the average temperature of the house. One group of birds was reared in the five to eight-week period at 63 degrees. Other birds were reared at 53 degrees after their fifth week.

Those in the colder house fared better. Their average weight was 3.07 lb. with a feed conversion of 2.29, while the warmer house had an average weight of 2.99 lb. and a conversion of 2.37.

The third phase of the experiment was a comparison of some of the popular broiler crosses. Those under study were: Peterson male crosses and Vantress male crosses on the following females—Nichols 108, Pilch, Arbor Acres and Martin's JB1.

James Nicholson, poultry extension specialist in charge of the experiments, said the results can not be considered a contest since all hatching eggs were not produced under uniform conditions. The experiment does show, however, the relative growth of each cross.

"All crosses involving Vantress males had an average weight of 3.30 lb. at the end of eight weeks," said Mr. Nicholson. "The Peterson males gave a weight of 3.10 lb.

"Pens of Pilch females gave the highest average weight of 3.29 lb. Second was Nichols 108 with 3.25," he said.

"The average weight of all birds in the trial was 3.20 lb.," he noted. "A crossing of Vantress males on Nichols 108 gave the highest weight of 3.51 lb. Feed conversions of the various crosses ranged from 1.95-2."

**House Description**

Completed last November, the 340-ft. research house has 32 identical pens of 10 by 20 ft. A 5-ft. alleyway runs the length of the building in front of the pens. These pens are formed by removable partitions, in the event it is desired to study larger flocks.

Use of sliding doors, instead of swinging doors, makes it impossible to leave one pen with the door open, when going from pen to pen. To go into another pen, the door will slide only to close the opening to the other pen.

Pen floors slope to the side and back to simplify cleaning. Litter is thus easier to push to an outside back door for removal.

Fiber board panels fold out from the wall to form the brooder. As the chicks grow out of the brooding stage, the panel is folded back against the wall and acts as a guard over the heating pipes to keep the birds from roosting there.

A gift of $5,000 from the Poultry Growers Exchange, Shelbyville, Del., was used to install the hot water heating system. Finned tubing radiates the heat to the house.

The new house will be used in conjunction with the older house. It is planned that the new building will be partly used for the study of management practices, strain comparisons and so forth. The birds that are raised in it can also serve as a control group for the birds that are raised and studied in the old house, Dr. Shaffner says.

# New Sales Training Program Conducted

CHICAGO—Thirty sales and sales training managers from eight states were on hand at the Drake Hotel March 1 to participate in a new training program conducted by Ralph Everett of Empire Sales Training, Inc., Miami, Fla. Theme of Mr. Everett's new program for the feed industry is effective time management by feed territory salesmen.

Screened for the first time before a feed industry audience were two new films on the theme, "The Time of Your Life." The Empire program is designed for presentation to feed sales organizations either by sales managers themselves or by Mr. Everett.

In his remarks, Mr. Everett stressed that every feed salesman should read regularly at least one soundly-edited industry publication and should be active in feed trade association work.

Besides the feed company sales management persons who attended, others who took part in the one-day meeting were ingredient suppliers and a machinery manufacturer.

# May Rebuild Feed Mill

ASHTON, IOWA—The feed mill and two adjacent warehouses of the Farmers Elevator Co. here, which were destroyed in a $250,000 fire, may be rebuilt, according to Roy Hofsommer, manager.

The building was practically new, completed and put into operation in April, 1959. The fire was of undetermined origin.

Power Feed Models Nos. A-3, A-4 and A-4E Edtbauer-Duplex Net Weighers. The No. A-3 weighs 5- to 25-pound discharges; No. A-4 and A-4E, 15 to 50 pounds—of nonfree-flowing cereals and feeds, including pellets, crumbles, dog foods, etc.

You'll make worthwhile cost-per-package savings by weighing 5, 10, 25 and 50-pound packages on Edtbauer-Duplex Net Weighers. These accurate weighers prevent costly overweights . . . hold weight variations well within commercial tolerances. Dependable, automatic operation also saves labor in the packaging department.

The accuracy, simplicity of operation, and minimum maintenance cost of the Edtbauer-Duplex line are well known in the milling industry. Built in both gravity and power feed models, Edtbauer-Duplex Weighers are in wide use for packaging rice, corn meal and other cereals, rolled oats, pancake and whole wheat flour, animal feeds, and other mill products.

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## Stable Vitamin K Now Available

An extremely stable vitamin K premix, NEW PROCESS HETROGEN K, was made available to the feed industry today by the Heterochemical Corporation of Valley Stream, L. I. Years of research and development went into the perfection of this new product which assures maximum stability of vitamin K premixes under the most adverse conditions of temperature and humidity. Under normal storage conditions NEW PROCESS HETROGEN K PREMIX† retained 98% potency while ordinary vitamin K premixes lost 30% of their labeled potency.

In accelerated storage tests where old style premixes of poor stability lost from 50% to 73% of their potency, NEW PROCESS HETROGEN K retained 92% potency. Feed manufacturers can now be assured that the potency in the bag matches the potency on the tag, whatever the storage circumstances.

Prices of NEW PROCESS HETROGEN K are competitive with ordinary vitamin K premixes now on the market. For many mill owners this can mean a reduction in vitamin K fortification costs by elimination of overfill and storage losses. A full range of potencies from 4 to 64 grams per pound are available on calcite or edible soymeal carriers.

## Arkansas Congressmen Asked to Help Get FDA Okay on TPA

WASHINGTON — Four Arkansas poultry experts met with Arkansas congressional delegation here to discuss federal regulations covering use of drugs for treatment of "air sac."

The group told the congressmen that one federal agency (USDA) regularly rejects about 5% of Arkansas poultry as ill and unfit for sale, while another (Food and Drug Administration) refuses to let producers use a new substance to help treat the ailment. They were referring to terephthalic acid (TPA), used to potentiate antibiotics.

Poultry experts attending the meeting were John Haid, secretary of the Arkansas Poultry Federation; Dr. E. H. Peterson, University of Arkansas veterinarian who has conducted TPA and antibiotic research; Henry Thomason, president of the Arkansas Poultry Exchange, Springdale, and Joe Ray, a Danville, Ark., processing plant operator.

The poultrymen told the delegation that "the present Aureomycin treatment is not completely effective in controlling 'air sac.' The antibiotic cannot be absorbed rapidly enough to ward off the disease."

The group asked for help in obtaining FDA clearance for use of TPA. They said that use of this additive with the antibiotic increases the rate at which poultry can absorb Aureomycin. However, they said, FDA has prevented use of TPA pending a two-year test.

Rep. James W. Trimble of Berryville said he would ask FDA to cut the test period to one year.

### OFFICES TO BE MOVED

HOUSTON, TEXAS—Maurice Pincoffs Co. will move its offices to Marine Building, 1305 Prairie, effective May 15, according to Edmund Pincoffs.

## *Urges Feed Men to Help Overseas*

ROANOKE, VA.—Dr. R. W. Engel of the Virginia Polytechnic Institute department of biochemistry and nutrition called on the feed industry to take an active part in developing sound animal production programs in many lands where such programs can improve the health of the people.

Speaking at the Virginia Feed Convention and Nutrition Conference in Roanoke, he pointed out that two thirds of the world's people do not have a food supply sufficient to satisfy minimum needs, and they also lack variety in foods, particularly with regard to animal products.

"Whether or not we succeed in improving the nutritional health of underprivileged populations," Dr. Engel said, "will in large measure determine whether or not such people will become our friends or our enemies."

We are sharing our abundant food supply with others, but the amount of dry milk, for instance, which has been distributed is infinitesimal per person when compared with the amount of milk consumed in the U.S.

"The development of animal agriculture is essential in many lands," Dr. Engel said, "and if the people in such lands are to remain our friends, we must provide the technical know-how."

"In my condition, I can't afford to trifle with nervous tension. That's why I eat plenty of antibiotic-powered Life Cycle Feeds."

**NEW PFIZER PROMOTION—This is an example of a series of cartoons prepared by Chas. Pfizer & Co., Inc., to be used as a tool to remind farmers, in a lighthearted way, that "Life Cycle Management is a means to more profitable hog production." "The cartoons can be an effective means of calling attention to a most worthwhile program," say Pfizer officials.**

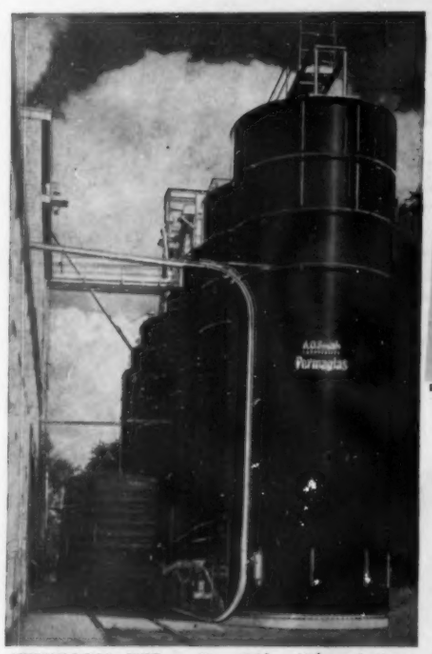
## Assigned to CSC Nutrition Sales Staff

NEW YORK—R. Dean Thomas has been assigned to the sales staff of the animal nutrition department of Commercial Solvents Corp., according to I. Roy Cohen, sales manager of the department. Mr. Thomas has been with the firm's sales department since 1957.

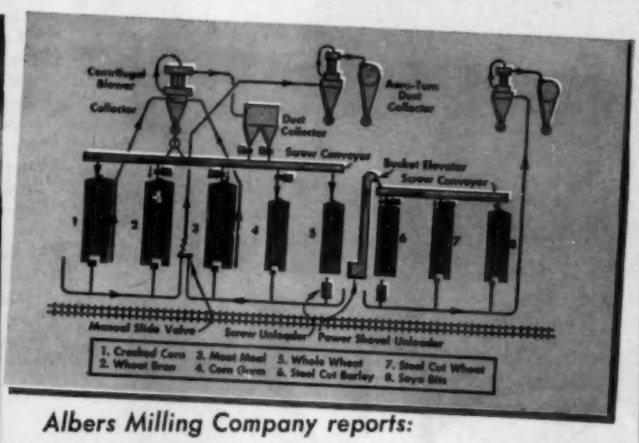
R. D. Thomas

Mr. Thomas will call on feed manufacturers in Southern California and Arizona. This reassignment is part of the company's expanded program in the marketing nationally of Baciferm, a zinc bacitracin feed supplement. He also will handle the sales of the company's other products including Silotracin, an antibiotic method for the preservation of grass silage. He will continue his headquarters at the company's Los Angeles office.

Mr. Thomas received his B.S. degree in bacteriology from Iowa State University, and his master's degree in microbiology from the University of Southern California.

JEFFERSON, WIS. — Five 14′ x 40′ and three 20′ x 50′ *Permaglas* Mechanized Storage Units.




*Albers Milling Company reports:*

"**Permaglas®** Mechanized Storage System cut our feedstuff handling cost over **50%**...bulk savings average **$4.00** per ton"

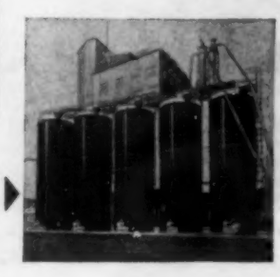
As illustrated in schematic diagram, the Albers Milling Company's plant, Jefferson, Wis., uses two separate unloading and transfer systems which consist of eight *Permaglas* Mechanized Bulk Storage Units (five 14′ x 40′ and three 20′ x 50′). They are equipped with A. O. Smith's exclusive mechanical sweep-arm bottom unloaders. The automatic *Permaglas* system makes possible completely sanitary storage and conveying of whole and cracked wheat, and soft ingredients for production of dry and canned dog food—called Friskies. Ten additional *Permaglas* Units with mechanical unloaders are serving at two other Albers Milling plants in Los Angeles and Kansas City.

Albers' Jefferson plant reports these substantial cost-savings in time, labor and bulk purchases: **more than 50% savings in labor handling costs...$4.00 per ton savings from bulk purchases rather than in sacks...considerable gain in warehousing storage space.**

The *Permaglas* Structures are glass-fused-to-steel construction both inside and out. They provide utmost sanitary, easy-to-clean systems. The gleaming coat of glass is permanently bonded to steel at temperatures in excess of 1500° F. with bonded strength up to 20,000 psi. What's more, the rugged, mechanical sweep-arm bottom unloader discharges free-flowing materials rapidly and efficiently—eliminating packing and bridging.

Like Albers Milling, you, too, can boost profits with a *Permaglas* Mechanized Bulk Storage and Unloading system. For more details on *Permaglas* Storage Systems, mail coupon today.

LOS ANGELES, CALIF. Five 14′ x 40′ *Permaglas* Mechanized Bulk Storage Structures.



KANSAS CITY, MO. — Five 14′ x 40′ *Permaglas* Mechanized Bulk Storage Structures.

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GALLIMYCIN Injectable may be safely administered to broilers, breeder hens and turkeys over four days of age. All birds, broilers, breeder hens and turkeys in the flock showing symptoms of C-R-D or other indicated disease conditions should be treated.
THE ROUTE OF CHOICE is subcutaneously in the loose skin of the neck, just behind the head. Intramuscular injections should be made only in the breast muscles.

# Now You Can Get Peak Blood Levels in Just One Hour!

**NEW EFFECTIVENESS—DESTROYS PPLO** GALLIMYCIN Injectable—Improved is Abbott's new erythromycin compound for treating diseases of turkeys and chickens. When administered at recommended dosages, this new Injectable produces blood levels significantly higher than the minimum needed to destroy PPLO. It works fast—*achieves peak blood levels in just one hour!* Then it stays in the bloodstream—destroying PPLO (the major causative organism of C-R-D)—for many hours afterwards.

**NEW LOW COST PER BIRD** The high effectiveness of GALLIMYCIN Injectable makes possible low dosages and low cost per bird. For example, it costs less than ½¢ to inject a 1-lb. bird. One injection is usually adequate *for the treatment of* such poultry diseases as C-R-D (Air Sac), Coryza, Infectious Sinusitis and *to aid in the management of* Synovitis (caused by PPLO or staphylococci) and Staphylococcosis.

**NEW CONVENIENCE . . . READY-TO-USE** The new, Improved GALLIMYCIN Injectable now comes to you in a convenient, ready-mixed, ready-to-use solution. No measuring, no mixing . . . no fuss or bother. It is supplied in 250-cc bottles and is available now from the GALLIMYCIN supplier in your area.

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# Basic Brooding Principles Emphasized At Georgia Poultry Health Workshops

By MILTON V. DENDY
Georgia Extension Poultryman

ATHENS, GA.—A series of poultry health workshops held throughout Georgia recently served to remind dealers, servicemen and growers that a departure from basic brooding principles leads to disaster.

Since the advent of federal inspection, the "sloppy operators" can no long survive, it was pointed out.

These meetings were sponsored by the Georgia Poultry Federation and conducted cooperatively by the Georgia Agricultural Extension Service, the University of Georgia Poultry Department, the Georgia Poultry Federation, the Georgia Poultry Laboratories and the Federal Inspection Service.

More than 500 dealers, servicemen and growers were involved in the 10 workshop sessions. No records were available of the number of broilers represented, but conservative estimates placed them at 75-80% of the state's total production.

The great majority of those participating in the workshops agreed that condemnation rates must be reduced if the broiler business is to survive. They further agreed that the problem must be solved from the management side. Medication for respiratory troubles (which account for about 80% of the condemnations in Georgia) has not proved satisfactory nor economically feasible, they indicated.

Most of the dealers, servicemen and growers have the knowledge of husbandry practices needed to produce good broilers, but they often get "short circuited" by the pressure of time, competition and other factors and do not follow through, it was observed.

At all the workshops, the two factors which received the most attention and were deemed most critical were adequate heat and proper ventilation. Participants agreed that, in many instances, respiratory troubles can be traced back to stresses caused by over-crowding; brooder stoves; lack of floor space, feeder space or watering space; poor ventilation, or other mismanagement factors.

### Condemnations Up

These poultry health workshops resulted from concern by industry leaders over the increasing rate of condemnations in dressed broilers during November and December. During the first 10 months of the year, condemnations averaged about 1.5%, but rose to above 3% the first part of December. By calculation, the loss resulting would exceed $1.8 million. The officials of the Georgia Poultry Federation requested a committee to look into the possibility of holding servicemen's workshops and thereby arrive at some solution to the problem of increasing condemnations.

The workshop committee decided that it would be best to hold a series of short meetings in several locations rather than an all-day workshop in one central location.

The meetings were of approximately one-half day's duration and were held in Gainesville, Athens, Augusta, Douglas, Cumming, Carrollton, Calhoun, Dalton and Canton. (Two sessions were held in the Dalton area.)

### Causes Discussed

In each workshop, the causes of condemnations were explained and discussed, colored slides of the fowl's respiratory tract shown and demonstrations of condemned birds exhibited. Data were presented to show that about 80% of the condemnations were resulting directly or indirectly from respiratory troubles, chiefly chronic respiratory disease.

Testimony was presented to show that available drugs and medicines are not satisfactory, at least as far as clearing up lesions and infections resulting from a severe case of respiratory troubles to a point where condemnations will be insignificant.

With all this as a basis, each of the groups was then involved in a discussion of possible means and methods of preventing respiratory troubles and thereby reducing condemnations. The entire brooding and growing operation was reviewed and emphasis given to discussion of practices which affect problems existing in each particular workshop area. It was generally agreed that servicemen and growers know how to grow good broilers but in many cases are not following through by putting their knowledge into practice. At all the workshops, it was agreed that heat and ventilation are two of the most important factors involved in brooding.

As might be expected, there were slight differences of opinion on some of the brooding and growing principles. However, a majority indicated that the following recommendations, put into practice by broiler growers, would result in reducing stresses which could trigger off respiratory troubles. In turn this should result in healthier flocks and lower condemnation rates. These recommendations are:

- Floor Space—1 sq. ft. per chick.
- Chicks Per Brooder—500-750 per 1,000 capacity hover.
- Temperature—90°-95° F. at edge of hover to start and reduce gradually (about 5° per week). Maintain a room temperature of 50°-60° F. if practical. Supplementary heaters were recommended with gas or electric brooding systems.
- Duration of Heating Period—as long as heat is needed! This would vary from one to three weeks in the hottest weather to the entire growing period in severe cold weather. (Emphasis was given to need for additional heat during stress periods such as vaccination reactions, etc.)
- Feeding Space—start with 1 in. per chick, increase as needed until 3 in. per chick is reached near end of growing period.
- Watering Space—if small founts are used to start, provide 10 to 12 per 1,000 chicks. Change gradually to


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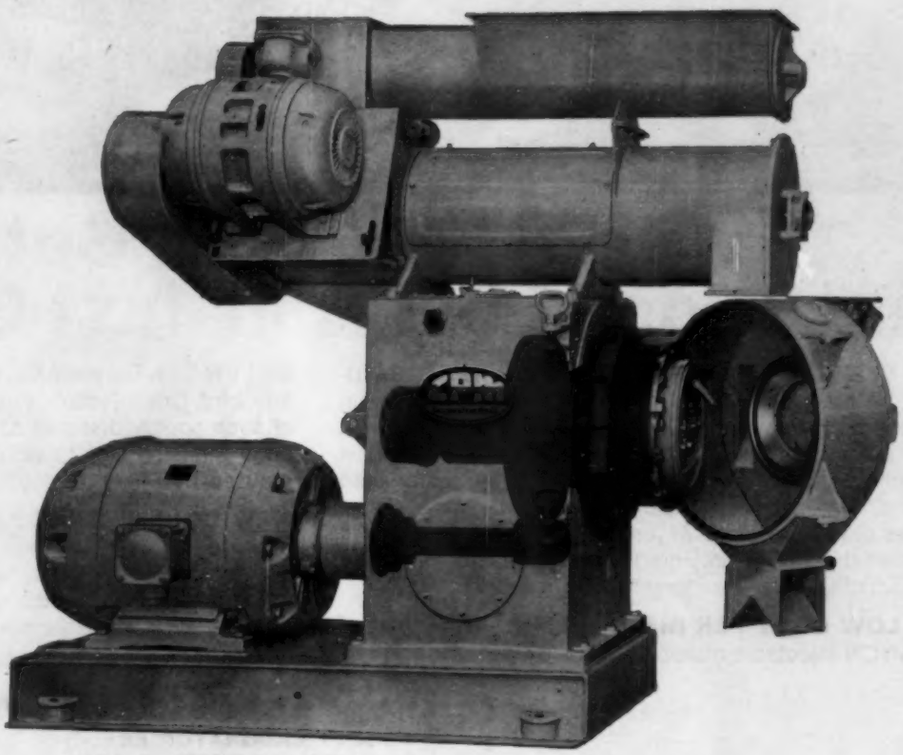

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automatic founts. Provide four to six 8-ft. troughs (or equivalent) per 1,000 chicks.

• Clean Out—houses should be thoroughly cleaned between broods and 4 to 6 in. of new litter added. (It is not always possible to get new litter, and, in cases where old litter is used, all wet and caked litter should be removed. It was generally agreed that flocks on old litter required better management than flocks on new litter.) Wood shavings are preferred for litter.

• Ventilation—every house presents a different problem. The important thing is to provide fresh air without drafts.

• Sanitation—clean waterers daily; clean feeders as needed; allow no visitors in broiler houses; provide disposal pits or incinerators for dead bird disposal; screen poultry houses with mesh wire to keep out wild birds, and put on poison to control rats.

It was the opinion of many of the servicemen and dealers participating that a return to the fundamentals as outlined above would be a help in warding off stresses and in avoiding some of the conditions causing high rates of condemnation. Their attitude might well be summed up by saying, "Better Management Will Grow Healthier Birds."

Here are some suggestions offered to get growers to follow these recommendations:

1. Provide an incentive for growers to do a top-notch management job.

2. Develop a cooperative understanding between dealers and growers.

3. Make sure the grower understands why it should be done; show how it will affect his income.

4. Insist on flock checks by servicemen two or three times per week.

5. To get the job done, keep plugging.

6. Refuse to place chicks with growers who will not follow recommendations.

7. Require more careful checks by servicemen to see that everything is in order before chicks are delivered.

## Portland Exchange Elects New President

PORTLAND, ORE.—Murray Lessing, Louis Dreyfus Corp., has been elected president of the Portland Grain Exchange. As president, he automatically becomes a member of the board of governors of the Oregon Feed & Seed Dealers Assn.

Vice president is W. H. Fisher, Cargill, Inc., while Rich Pennell, Kerr Grain Corp., is treasurer.

Board members include R. H. Enloe, Continental Grain Co.; G. E. Tucker, Balfour, Guthrie & Co.; W. A. Richards, North Pacific Grain Growers, Inc.; Walter Mikkelsen, Centennial Mills; Ed Wyss, Dairy Cooperative Assn., and L. E. Davis, Archer-Daniels-Midland Co. L. C. Fowler was reappointed secretary.

Jack Reeves

Ed Widner

## Three Posts Filled by Pillsbury Feeds Unit

CLINTON, IOWA — Appointement of Jack Reeves as sales manager and Ed Widner as manager of the Pillsbury feed division's new plant at Jasper, Ala., has been announced by Clarence S. Bell, general sales manager of the division.

Jack Delcamp

The plant will be in operation early this spring.

Mr. Reeves joined the Ballard & Ballard Co. in 1946, and remained when Pillsbury acquired the firm in 1952. He held administrative and sales positions in Charleston, W. Va., Augusta, Ga., Birmingham, Ala., and Louisville, Ky. He was appointed a territory manager at Pillsbury's Gainesville Ga., plant in 1956.

Mr. Widner has been manager of the company's Nashville, Tenn., plant since 1956. He joined Pillsbury in 1940 and served in plant operating positions at Los Angeles and Colton, Cal.

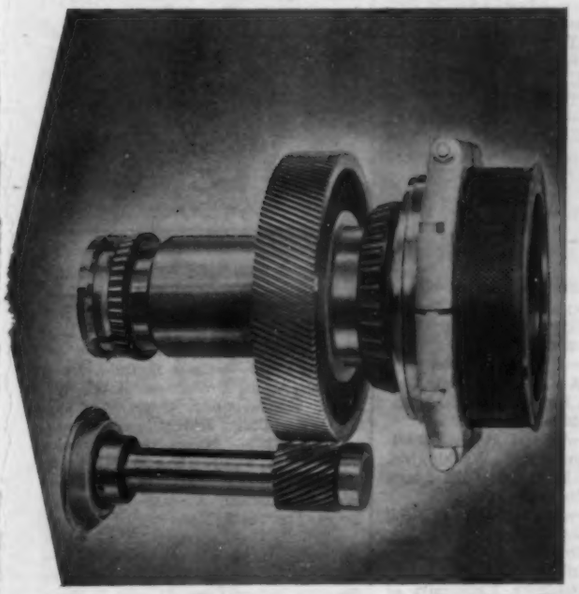
Mr. Bell also announced the appointment of Jack Delcamp to a sales position at Pillsbury's Orlando, Fla., plant. Mr. Delcamp joined the feed sales staff in 1950 at Clinton and was later a territory manager at the Centerville, Iowa, and Atchison, Kansas, plants. He has served as feeding plans service manager, advertising services manager and sales service administrator.

### NEW INCORPORATION

PARIS, KY.—Bourban Feed & Supply Co. has filed articles of incorporation at 300 shares, no par, to participate in the feed and supply business. Incorporators are D. M. Wilson and Frank Aulick, Jr., Paris, and Don Ross, Lexington.


# FULL POWER GEAR TRAIN DRIVE

When you pay for horsepower in a pellet mill, you want it transmitted to the pelleting job. Not two-thirds. Not three-fourths. *But all the power you paid for!*



One system – direct gear drive – provides this assurance of consistent, efficient power transmission that no combination of ready-made belts can hope to do. Consider for a moment the universal engineering acceptance of gear system power transfer in the design of trucks, automobiles, tractors and other heavy duty power equipment. Yet, among pellet mill manufacturers, only CPM builds this tremendous plus feature into every single mill.

**CPM gear trains offer many design advantages:**

• *Precision power drive of extremely long service life.* A drive that doesn't lose its "snap" as tension systems must.

• *Compact, space-saving.* All gears machined from high-alloy steel and fitted to perfect alignment. The entire unit is sealed in metal with all bearings and gears operating in a protective oil bath. The drive is an integral part of the machine, affording a unity that multiple belt hook-ups can never achieve.

• *Safety is greatly increased,* both from fire and for personnel who work with and around the equipment. No cleats, cogs or belts for uneven tension and strain. Nothing to "let fly," slip or stretch.

The FULL POWER GEAR TRAIN DRIVE, like other outstanding engineering exclusives from CPM, have made California first in pellet mills for over thirty years. See the man from CPM for a pellet mill *precision-engineered* to do your pelleting job better. *Remember: More California Pellet Mills are sold today than all other makes combined!*

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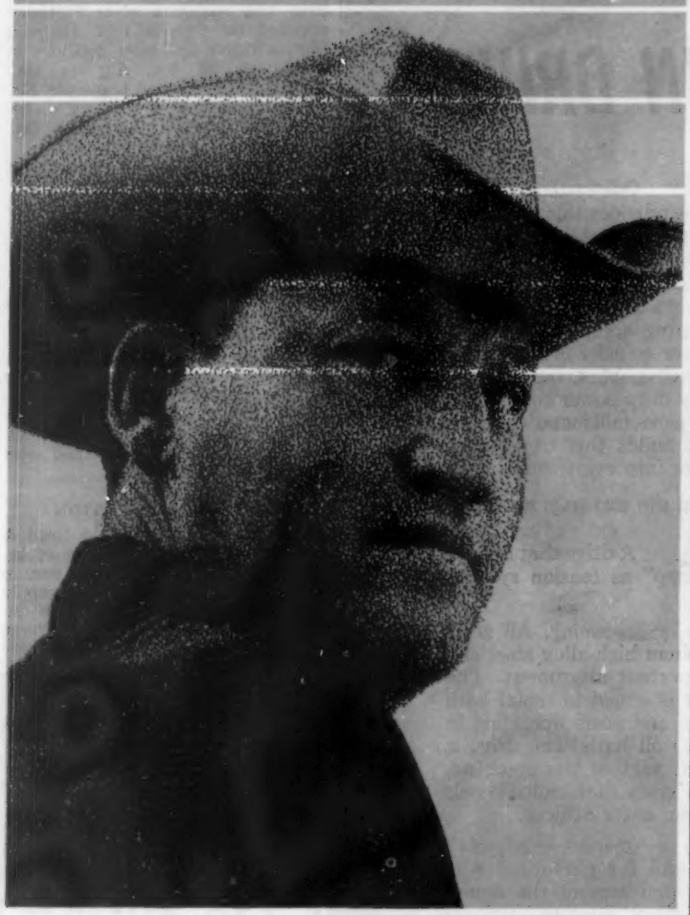

■ It's as simple as two and two: chicks that die from improper or insufficient diet while still in the brooder stage certainly can't do much to boost egg production profits. More and more wise poultrymen everywhere are minimizing this costly danger by feeding Texo's famous "Quik-Chik" chick starter feed. ■ Texo "Quik-Chik" sharply reduces the chicks' mortality rate because it is a complete feed, heavily fortified with high quality proteins, carbohydrates, vitamins and minerals. The grower has fewer culls . . . chicks develop into better, stronger pullets for a longer and more profitable production period. Also, actual field tests have proven that chicks started on Texo "Quik-Chik" begin laying seven days earlier! That's quite a bonus in egg production. ■ Yes, "Quik-Chik" is the chick starter feed specifically developed for the profit-minded poultryman . . . the man who no longer buys blind, but buys strictly on profit—with TEXO!

TEXO FEEDS BURRUS FEED MILLS

P. O. BOX 1688 • FORT WORTH, TEXAS

# Convention Calendar

**March 13-17 — Grain Elevator & Processing Superintendents;** Jung Hotel, New Orleans, La.; sec., Dean M. Clark, "Grain" Magazine, 1120 Board of Trade, Chicago 4, Ill.

**March 17-18—Oregon Feed & Seed Dealers Assn.;** New Sheraton Hotel, Portland, Ore.; mgr., Russ Hays, 702 Lewis Bldg., Portland, Ore.

**March 17-18 — Maryland Nutrition Conference;** Shoreham Hotel, Washington, D.C.; chm., Richard D. Creek, University of Maryland, Department of Poultry Husbandry, College Park.

**March 23—Distillers Feed Conference;** Sheraton Gibson Hotel, Cincinnati; sponsored by Distillers Feed Research Council; exec. director, Dr. Lawrence E. Carpenter, 1232 Enquirer Bldg., Cincinnati, Ohio.

**March 23-24—National Broiler Industry Conference;** Dinkler-Plaza Hotel, Atlanta, Ga.; vice pres., Frank Frazier, P.O. Box 368, Richmond, Va.

**March 27-29 — Colorado Grain, Milling & Feed Dealers Assn.;** Shirley-Savoy Hotel, Denver; sec., O. W. Eriksen, 519 Boston Bldg., Denver 2.

**March 29—New Jersey Poultry Nutrition Institute;** Rutgers University, New Brunswick, N.J.; R. L. Squibb, chairman, Poultry Science Department.

**March 31-April 2—Pacific Dairy & Poultry Assn. Exposition and Convention;** Stardust Hotel, Las Vegas, Nev.; association office, 1304 E. 7th St., Los Angeles 21, Cal.

**April 1-2 — Texas Grain & Feed Assn.,** Shamrock Hotel, Houston; sec., Ray B. Bowden, 407 Fort Worth Club Bldg., Ft. Worth, Texas.

**April 5-7—Nebraska Grain & Feed Dealers Assn.;** Pershing Municipal Auditorium, Lincoln; sec., Howard W. Elm, Trust Bldg., Lincoln, Neb.

**April 6—Purdue Egg Day;** Purdue Memorial Center, Fowler Hall, Purdue University, Lafayette, Ind.; David D. Jackson, Extension Poultryman.

**April 10—Informal Poultry Nutrition Conference;** Chicago, Ill.; Dr. M. L. Sunde, Poultry Department, University of Wisconsin, Madison.

**April 11-13 — Poultry and Egg National Board,** LaSalle Hotel, Chicago, Ill.; mgr., Floyd Gell, 8 S. Michigan Ave., Chicago 13, Ill.

**April 17-19—Animal Health Institute;** Shoreham Hotel, Washington, D. C.; sec., D. L. Bruner, 512 Shops Bldg., Des Moines 9, Iowa.

**April 21—New England Dairy Feed Conference;** Hotel Lenox, Boston, Mass.; chm., Dr. Stanley N. Gaunt, Dairy and Animal Science Dept., College of Agriculture, University of Massachusetts, Amherst.

**April 22—Indiana Cattle Feeders Day;** Purdue University, Lafayette, Ind.; chm., Dr. W. M. Beeson, Animal Science Dept.

## New Listings

**For the convenience of readers who scan the Convention Calendar regularly for new listings, those added to the column in the current week appear separately from ones which have been entered previously. The following week they will be moved to their proper slot where they will remain until the event is held.**

**April 10—Informal Poultry Nutrition Conference;** Waldorf Ballroom, Conrad Hilton Hotel, Chicago; Edward C. Naber, Poultry Science Dept., Ohio State University, Columbus 10.

**April 11-15—Federation of American Societies for Experimental Biology;** Waldorf Ballroom, Conrad Hilton Hotel, Chicago; Edward C. Naber, Poultry Science Dept., Ohio State University, Columbus 10.

**April 21-23—Florida Beef Cattle Breeders and Herdsmens Short Course;** University of Florida Livestock Pavilion, Gainesville; Dr. T. H. Cunha, Animal Husbandry Dept.

**May 11—South Carolina Poultry Festival;** Batesburg-Leesville, S.C.; sec., W. E. Sanders, Batesburg.

**June 24-25—Arkansas Poultry Festival;** Little Rock; Arkansas Poultry Federation, P.O. Box 1446, Little Rock; chm., Jerry Hinshaw, Springdale.

**July 19-21—American Poultry Congress and Exposition;** Ellis Auditorium, Memphis, Tenn.; sponsored by American Poultry & Hatchery Federation; sec., Don M. Turnbull, 521 E. 63rd St., Kansas City 10, Mo.

**Nov. 9-12 — National Renderers Assn.;** Statler-Hilton Hotel, Dallas, Texas; sec., Miss Jamie Fox, 30 N. LaSalle St., Chicago, Ill.

**April 21-23—California Hay, Grain & Feed Dealers Assn.;** Ambassador Hotel, Los Angeles; sec., John Gilmore, Blue Anchor Bldg., 1400 10th St., Sacramento 14, Cal.

**April 21-23—Kansas Grain & Feed Dealers Assn.;** Broadview Hotel, Wichita, Kansas; sec., Orris E. Case, 609 Wiley Bldg., Hutchinson, Kansas.

**April 22 — Nebraska Livestock Feeders Day;** University of Nebraska, College of Agriculture, Lincoln; chm., Wm. J. Loeffel, Animal Husbandry Dept., Lincoln 3, Neb.

**April 24-28—Business Management Program,** sponsored by Southeastern Poultry & Egg Assn., University of Georgia, Athens; sec., Harold E. Ford, 235 East Ponce De Leon Ave., Decatur.

**May 1-4—National Fisheries Institute;** Hotel Fontainebleau, Miami Beach, Fla.; asst. gen. mgr., Mal

Xavier, 1614 20th St. N.W., Washington 9, D.C.

**May 9-11 — American Feed Manufacturers Assn.;** Conrad Hilton Hotel, Chicago; sec., W. T. Diamond, 53 W. Jackson Blvd., Chicago 4, Ill.

**May 9-11 — Association of American Feed Control Officials;** Sheraton-Blackstone Hotel, Chicago; sec., Bruce Poundstone, Feed and Fertilizer Dept., Agricultural Experiment Station Bldg., University of Kentucky, Lexington.

**May 15-16—Missouri Grain & Feed Assn.;** Hotel Governor, Jefferson City; sec., D. A. Meinershagen, Higginsville.

**May 15-17 — National Cottonseed Products Assn.;** Roosevelt Hotel, New Orleans, La.; sec., John F. Moloney, Box 5736, Memphis 4, Tenn.

**May 23-27 — Southeastern Egg Quality and Grading School;** University of Georgia, Athens; sponsored by Southeastern Poultry & Egg Assn., sec., Harold E. Ford, 235 East Ponce De Leon Ave., Decatur.

**June 12-14—Eastern Federation of Feed Merchants, Inc.;** Whiteface Inn, Lake Placid, N.Y.; exec. director, Austin W. Carpenter, Sherburne, N.Y.

**June 13-15 — American Association of Feed Microscopists;** Hilton Hotel, San Antonio, Texas; sec., G. M. Barnhart, Missouri Department of Agriculture, Jefferson City, Mo.

**June 14-15 — Alabama Poultry Industry Assn.;** Municipal Auditorium (Exhibits) and Thomas Jefferson Hotel, Birmingham, Ala.; sec., W. L. Walsh, Box 567, Montgomery.

**June 14-17—NEPPCO Egg Quality School;** Rutgers University, New Brunswick, N.J.; Dr. A. Van Wagenen, NEPPCO, 10 Rutgers Place, Trenton 8, N.J.

**June 17-18 — Delmarva Chicken Festival;** Selbyville, Delaware; Delmarva Poultry Industry, Inc., R.F.D. No. 2, Box 47, Georgetown.

**June 19-21—Indiana Grain & Feed Dealers Assn.;** Mid-Summer Convention; French Lick-Sheraton Hotel, French Lick; sec. Fred K. Sale, 600 Board of Trade Bldg., Indianapolis 4.

**June 19-22—The American Dairy Science Assn.;** Utah State University, Logan; sec., H. F. Judkins, 32 Ridgeway Circle, White Plains, N.Y.

**June 21-22—Association of Southern Feed & Fertilizer Control Officials;** Riverside Hotel, Gatlinburg, Tenn.; sec., Maurice B. Rowe, Department of Agriculture, 1119 State Office Bldg., Richmond 19, Va.

**June 23-24—Northeastern Poultry Producers Council Business Management Conference for Egg and Poultry Marketing Cooperatives;** Hotel Viking, Newport, Rhode Island; Alfred Van Wagenen, 10 Rutgers Place, Trenton 8, N.J.

**July 23-26 — Georgia Feed Assn.;** General Oglethorpe Hotel, Wilmington Island, Savannah; sec., Will L. Kinard, Suite 210, 3240 Peachtree Road Bldg., Atlanta 5, Ga.

**Aug. 2-5 — Poultry Science Assn.;** University of California, Davis; sec., C. B. Ryan, Texas A&M College, College Station.

**Aug. 14-18—Business Management Program,** sponsored by Southeastern Poultry & Egg Assn., University of Georgia, Athens; sec., Harold E. Ford, 235 East Ponce De Leon Ave., Decatur.

**Sept. 1-6—International Congress on Nutrition;** Sheraton-Park Hotel, Washington, D.C.; sponsored by International Union of Nutritional Sciences; sec., Milton O. Lee, 9650 Wisconsin Ave., Washington 14, D.C.

**Sept. 14-16—National Feed Ingredients Assn.;** Liggetts Holiday Inn, Burlington, Wis.; sec., Paul W. Bone.

**Sept. 21-23 — Feed Production School;** Continental Hotel, Kansas City; sponsored by Feed Production School, Inc.; pres., Lloyd Larson, 20 W. 9th St. Bldg., Kansas City 5, Mo.

**Sept. 22-23 — Arkansas Formula Feed Conference;** University of Arkansas, Fayetteville; chm., Dr. E. L. Stephenson, Department of Animal Industry and Veterinary Science.

**Oct. 4-6 — Northeastern Poultry Producers Council;** Exposition and Convention; Onondaga County War Memorial Bldg., Syracuse, N.Y.; Doris Endebrock, Exposition Mgr., 10 Rutgers Place, Trenton 8, N.J.

**Oct. 5-7—Texas Nutrition Conference,** Texas A&M College Station; chm., Dr. J. R. Couch, Department of Poultry Science.

**Oct. 11-12—Virginia State Poultry Federation convention and trade show;** Hotel Roanoke, Roanoke, Virginia; sec., J. Paul Williams, 615 East Franklin Street, Richmond 19.

**Oct. 12-13 — Association of American Feed Control Officials Annual Meeting;** Shoreham Hotel, Washington, D.C.; sec., Bruce Poundstone, Feed and Fertilizer Dept., Agricultural Experiment Station Bldg., Uni-

## CALENDAR FOR 1960-61

**MARCH**

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**JANUARY**

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**FOR HIGHEST LEGAL PAYLOADS PLUS ALL THESE FEATURES:**

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EXCLUSIVE tank-top and ground-level gate controls give fast, easy operation.

Fastest unload rate available (*up to a ton a minute*) often enables scheduling extra deliveries.

EXCLUSIVE chain and paddle conveyor system handles pelleted feeds with virtually no damage—gives your customers the pellets they paid for.

Complete operation accomplished by use of simple, inexpensive power take-off on truck transmission.

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Torque limiter automatically protects against overloading of conveyor system.

Low center of gravity and plenty of clearance with *all* loading bins.

Oversize leak-proof *sliding door* hatches for fast and easy loading.

Slip-proof expanded metal catwalks for maximum operator safety in all weather.

Maximum-duty design provides *wide sack decks* running full length of tank on both sides; will carry up to 1,400 pounds of sacked material.

The FMC Bulk Transport System, with its light, rugged aluminum construction and all-mechanical design is now, more than ever, your answer to best bulk delivery at least ton-mile costs.

**Truck mount models available in 8-16 ton capacities.**

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## EGG PRODUCTION RATE PER LAYER UP

WASHINGTON—The rate of egg production per layer during 1959 was five more than in 1958, with record-high levels in all months but November, the U.S. Department of Agriculture reports.

The rate per layer of 206 eggs compared with 201 per layer in 1958.

Egg production was up 3% in 1959 from 1958, totaling 62,401 million eggs compared with 60,703 in 1958. Egg production was up 4% from 1958 during the first 10 months of the year, but was 2% below during November through December. Egg production in 1959 was 6% more than five years earlier (1954), with rate of lay up 10%, which more than offset the 3% smaller number of layers.

Number of layers on hand during 1959 averaged 304 million compared with 301 million in 1958.

versity of Kentucky, Lexington.

**Oct. 16-18—Kentucky Poultry Federation and Kentucky Poultry Improvement Assn.;** Kentucky Hotel, Louisville; John W. Tuttle, field manager.

**Oct. 16-20—Business Management Program,** sponsored by the Southeastern Poultry & Egg Assn., University of Georgia, Athens; sec., Harold E. Ford, 235 East Ponce De Leon Ave., Decatur.

**Oct. 20-21—Cooperative G.L.F. Exchange, Inc.;** stockholders annual meeting; Onondaga War Memorial Bldg., Syracuse, N.Y.

**Oct. 27-28—National Swine Industry Conference;** University of Kentucky, Lexington.

**Nov. 2-3—Illinois Feed Assn.-Illinois Poultry & Hatchery Federation, joint convention;** Springfield Armory, Springfield; sec., IFA, Dean M. Clark, 141 W. Jackson Blvd., Chicago 4; sec., IPHF, Aubrey Harless, Shelbyville, Ill.

**Nov. 2-3—Kansas Poultry Assn.;** Broadview Hotel, Wichita; sec., Harry J. Reed, Box 663, Manhattan.

**Nov. 16-17—Missouri Poultry Improvement Assn.;** Hotel Continental, Kansas City; sec., E. M. Funk, Columbia, Missouri.

**Nov. 25-26—American Society of Animal Production;** Hotel Sherman, Chicago, Ill.; sec., Clair E. Terrill, Animal Husbandry Research Division, Agricultural Research Center, Beltsville, Md.

**1961**

**Jan. 12-13—Michigan Feed & Grain Dealers Assn.; Michigan State University, Kellogg Center; sec., Nevel Pearson, P.O. Box 472, East Lansing.**

## Pacific Grain Meeting

SPOKANE, WASH.—The 39th annual convention of the Pacific Northwest Grain Dealers Assn. will be held June 8-9 at the Davenport Hotel.

General convention chairman will be H. W. (Pete) Poort, Jr., Cargill, Inc.

## National Alfalfa to Move General Offices

KANSAS CITY—General offices of the National Alfalfa Dehydrating & Milling Co. will be moved from Lamar, Colo., to Kansas City, according to W. A. Donnelly, president.

National has maintained its general sales offices in Kansas City since 1954 and its purchasing office here since 1956. The decision to move the rest of the executive branches to Kansas City was prompted by the changing center of the company's operations, Mr. Donnelly said.

In the earlier years of National Alfalfa and its predecessor companies, Lamar was the logical headquarters to handle plants in Colorado, western Nebraska and Texas. But in recent years the firm has acquired operations in Ohio, Tennessee and other areas, which makes Kansas City the logical point for headquarters. Also, the fact that Kansas City is a transportation center for the entire U.S. adds to its advantages, Mr. Donnelly said.

When the move occurs early in April, National will move all of its operations to 4010 Washington Ave., Kansas City 11, vacating the quarters the sales and purchasing departments occupy in the Board of Trade Building at present. The entire second floor of the 4010 Washington Bldg. is being remodeled.

The only company executive who will remain in Lamar will be John Bressler, vice president.

### SALES REPRESENTATIVE

CAMILLA, GA.—Ed Storie, formerly of Gainesville, Ga., has been made sales representative for National Remedy Products Co. in south Georgia, with headquarters here. Mr. Storie will also operate Allison-Holland-Storie Co., which will distribute Naremco products, TMPC poultry equipment, Donaldson coops and Marshall vaccines. Leonard Holland, southeastern sales manager for National Remedy Products Co., explained that the move is part of Allison-Holland Co. in Gainesville, Ga., expansion.

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During the peak season, millions of pounds of liquid condensed whey are stored in huge tanks that are temperature controlled to maintain freshness and purity. During the off-season, Western can draw on this supply at your convenience.

The product is spray-dried to retain unidentified growth factor benefits and superior protein content. Uniform color and distribution in mixed feeds are assured.

Only Peebles' products can guarantee year-around availability, superior spray-dried processing and unvarying high quality. 32 plants across the country offer convenient service within easy reach.

Write for complete information about Peebles' Dried Whey products and how they can be of profit to you. Address: Dept. 54A.

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**THREE MODELS:**

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Operate the mill 10 days. If not satisfied, return it. WE WILL REFUND YOUR MONEY AND PAY RETURN FREIGHT.

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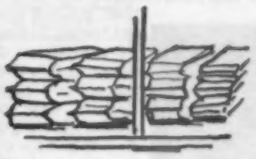
Expenses that were once incidental can now be substantial enough to wipe the profit right out of your feed making operation. If you're making your own trace mineral premix, how about checking those costs again—and remember, CCC premixes are the result of exhaustive research in the laboratory, in experimental work in cooperation with leading universities, and in actual use testing. CCC offers you the most advanced and thoroughly tested trace mineral premixes available.

**1** SAVE ON MIXING

**2** SAVE ON STORAGE



**3** SAVE ON INVENTORY EXPENSES

**4** SAVE ON LABORATORY EXPENSES

**5** SAVE ON CONTROL EXPENSES

**6** SAVE ON RISK EXPENSES

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**UNIFORM DISTRIBUTION**...milled to a fineness that assures uniform distribution of the recommended levels of each trace mineral.

**NON-OXIDIZING** . . . inhibits destruction of vitamins and fats in feeds —a special feature developed in the CCC Research Laboratory.

**STABLE** . . . each trace mineral retains its full potency over long periods of storage. Tests over a period of 880 days (nearly 2½ years) show no loss of iodine, normally the most unstable of them all.

**COMPATIBLE** . . . trace minerals in CCC premixes undergo no chemical change under usual storage conditions.

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# Tomorrow's Formulas for Swine Feeding

By Dr. Damon V. Catron
Iowa State University

*EDITOR'S NOTE: For the feed manufacturer who wants to know what to think about now to prepare for what's ahead in swine feed formulas, feeding practices and programs, a study of this article is suggested. The article was presented as a talk by Dr. Catron at the 16th Midwest Feed Manufacturers Assn. in Kansas City last month. The well-known swine nutritionist believes that swine formulas of the future will be: Palatability-controlled by processing and special "appetite-control" additives; more carefully balanced, supplemented with enzymes or specially processed to improve nutrient availability; "cost-controlled" as well as "nutrient-controlled"; based on the nutrient needs and purposes of feeding during the life-cycle stages; designed with nutrition-additive levels adjusted to the disease level on the farm; designed to help the animal adjust to temperature extremes, and tailor-made to prevent and combat variations in stress-level.*

*He predicts, also, that tomorrow's formulas for swine will have "built-in" intestinal-flora control; that tomorrow's rations must be formulated to permit increased handling in bulk for both storage and feeding; that they will have to keep pace with the genetic "bred-in" potential in swine which is expected to increase. Some formulas will be designed to be feed in liquid form, and there will be feeds which will permit controlled reproduction. Leaner carcasses will be obtained through formulation and also automatic limited feeding.*

*In Dr. Catron's opinion, "Tomorrow's formulas will no doubt provide improved feed efficiency at lower cost."*

To predict the future, we must appraise the past, analyze the present, then project present trends. The major nutritional developments affecting swine nutrition to date are shown in Figure 1. Let's take a look at tomorrow's swine feed formulas, feeding practices and programs and the factors which will affect them.

Damon Catron

**TOMORROW'S SWINE FORMULAS**—Based upon present trends, tomorrow's formulas, feeding practices and programs for swine will have some of the characteristics shown in Figure 2.

**1. Based on Research, Designed for Specific Purposes.**

Tomorrow's swine nutrition research goal is to establish more definitive nutritional requirements for the different stages of the life cycle and to specially design tomorrow's rations for specific feeding purposes within each stage of the life cycle without "overfeeding" or "underfeeding" nutrients (Figure 3).

There are many "gaps" in our knowledge of the nutritive requirements of swine throughout the entire life cycle. To date, most of these gaps have been filled with "guesstimated" figures which need refinement to achieve greater efficiency. We'll have a better understanding of the basic functions of different nutrients and additives and their inter-relationships in metabolism. The establishment of more exact nutritive requirements and better understanding of the inter-relationship will depend upon research productivity at both the college and industry levels.

**2. Built Around High-Yielding, Mechanically-produced Crops.**

Swine formulas of the future will be built around crops which produce high yields per acre and lend themselves to mechanized production and harvesting. Corn and sorghum grains are good illustrations from an energy yielding viewpoint. For supplementary, high-quality protein, the soybean will out-compete other high protein yieiding crops requiring hand harvesting. World-wide increased labor costs dictate this trend.

**3. Use of More Specialized Additives.**

Present legal restrictions on the use of scientifically safe feed additives must be resolved for the benefit of everyone. The future holds unlimited opportunities for the development of safe feed additives developed for specific purposes—controlling estrus, embryonic survival, lactation, feed consumption, temperature adaptation, diseases, parasites, carcass quality and many other biological functions in the animal over which the farmer would like control. This door has barely been opened!

**4. Palatability Controlled.**

Under-consumption of complete rations and over-consumption of supplements have been two major problems in the past. Energy levels in rations for sows during gestation should be restricted for maximum reproduction efficiency. Baby pig rations need to be "boosted" in palatability. Leaner carcasses can be produced by limited feeding. Europeans do this by hand feeding, but American hog producers will accomplish this by palatability-controlled rations and/or by automatic meter-proportioned grain and balanced supplements at the feed lot. Tomorrow's formulas will be palatability-controlled by processing and special "appetite-control" additives.

**5. Improved Nutrient Availability.**

Digestibility experiments show that we are failing to get maximum utilization of nutrients from present-day rations. This is especially true in the baby pig. Today's research shows that normal animals do not have sufficient amounts of certain digestive enzymes to efficiently liberate the nutrients from all commonly used feedstuffs. Tomorrow's rations will be more carefully balanced, supplemented with enzymes or specially processed (such as predigested) to improve nutrient availability.

**6. Formulated for Intestinal Flora Control.**

Everyone has been slow to learn the bacteriological principles involved in the somewhat successful "soaked oats and alkaline compound" and "buttermilk" treatments once used

Figure 1

MAJOR NUTRITIONAL DEVELOPMENTS AFFECTING SWINE NUTRITION

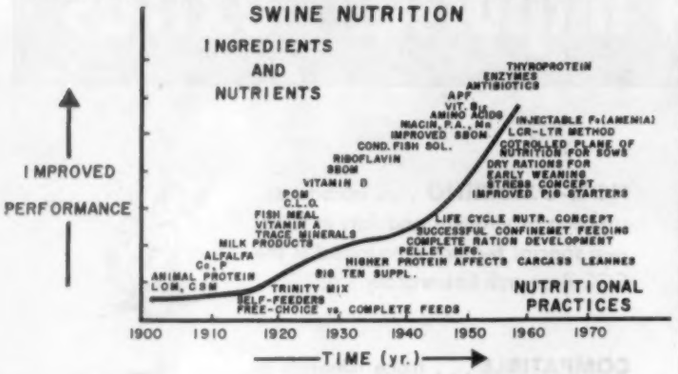



Figure 2

TOMORROW'S FORMULAS

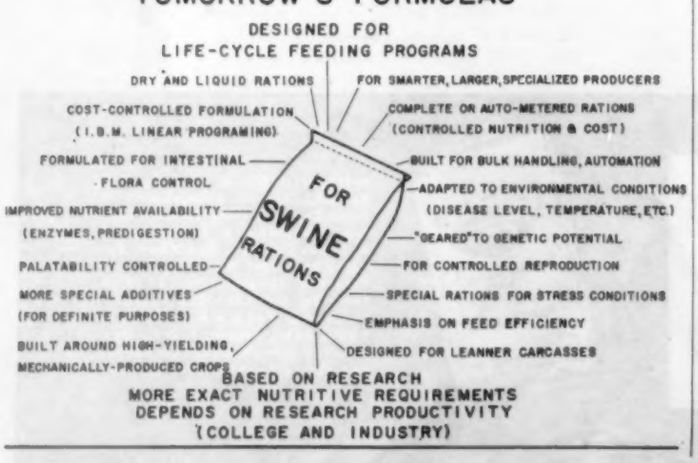



Figure 3

LIFE CYCLE SWINE NUTRITION

BUILD RATIONS INTO AN ECONOMICAL FEEDING PROGRAM BASED ON NUTRITIONAL NEEDS

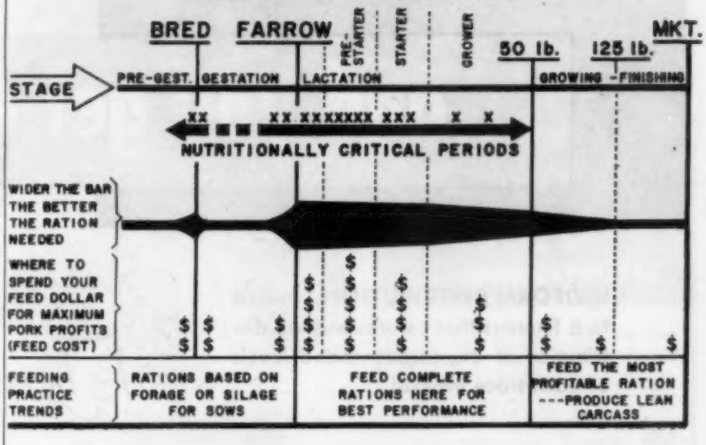



Figure 4

PRINCIPLES OF LIFE CYCLE SWINE NUTRITION

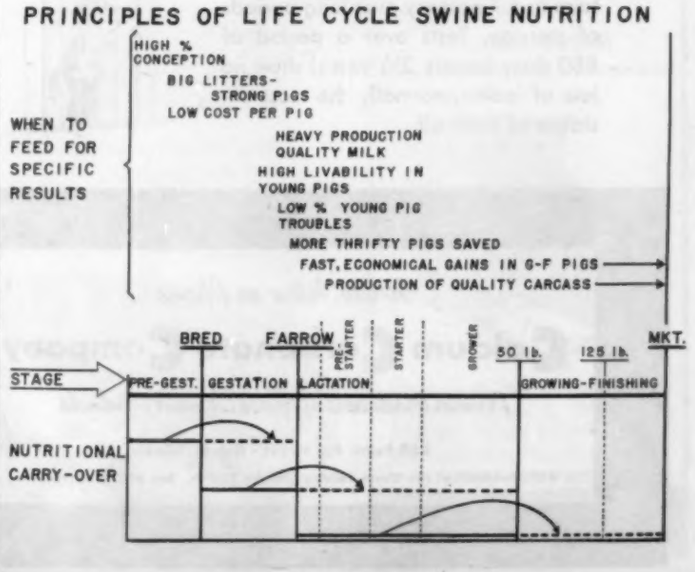
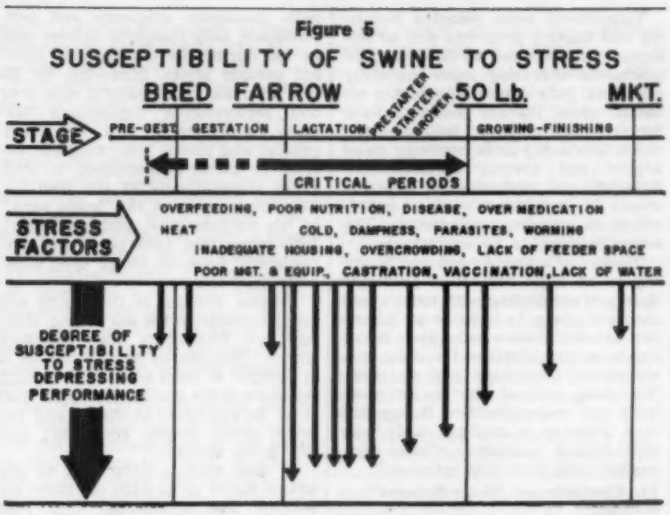


Figure 5




by veterinarians in the treatment of swine enteritis. They changed the intestinal flora!

Research workers have tried in vain to find more plausible explanations for the mode-of-action of additive antibiotics other than their influence on intestinal flora. Recent cooperative research between nutrition and bacteriology workers at the Iowa Agricultural Experiment Station clearly demonstrated that the kinds and amounts of intestinal flora in the pig can be changed, not only with chemotherapeutics, but also with different types of carbohydrates, different kinds and levels of protein and with certain trace minerals. Although the role of the intestinal flora is not fully understood—it is known that harmful, beneficial and neutral types of organisms do exist in the intestinal tract of the apparently healthy pig. Tomorrow's formulas will have "built-in" intestinal-flora control through the use of certain kinds and levels of ingredients, nutrients and additives (chemotherapeutics, cultures and inoculums).

**7. "Cost-Controlled" Formulation.**

Tomorrow's formulas will not only be "nutrient-controlled," but also will be "cost-controlled" for maximizing both performance and profit. Early feeding concepts were based on the premise that fastest gains were cheapest gains in growing-finishing swine, knowing that an increasing amount of the feed went for body maintenance as the pig grew larger, regardless of rate of gain.

Therefore, it seemed desirable to shorten the feeding period with fast gains to reduce the total quantity of feed wasted for maintenance. However, recent research on "least-time," "least-cost" rations for growing-finishing swine shows that the fastest gains are not necessarily the cheapest—it depends on the relative costs of ingredients, supplying the necessary nutrients, needed to make fastest gains.

The application of "least-cost" principles in ration formulation constitutes one of the major developments in cutting feed costs in pork production. These principles involve the application of new techniques in economic statistics on nutritional facts and principles. But, to date this has not been well-understood by many hog producers. Smart feed manufacturers were quick to see these principles because they had used them, mostly as an art, not as a science, in ration formulation for a good many years. Some feed manufacturers have already installed "electronic brains" for the formulation of cost-controlled rations through linear programming.

**8. Dry and Liquid Rations.**

Some of tomorrow's formulas will be designed for manufacturing feeds to be fed in liquid form. This does not necessarily mean a return to the "old slop barrel," but rather the bulk delivery of dry, meal-type rations to the farm where they will be mechanically mixed with water in tanks, then pumped at time intervals into simple feeding troughs.

Developments in automation make liquid rations look more practical primarily for growing-finishing swine. Possible advantages of liquid rations are: Pigs stay on feed better, rations

Figure 6

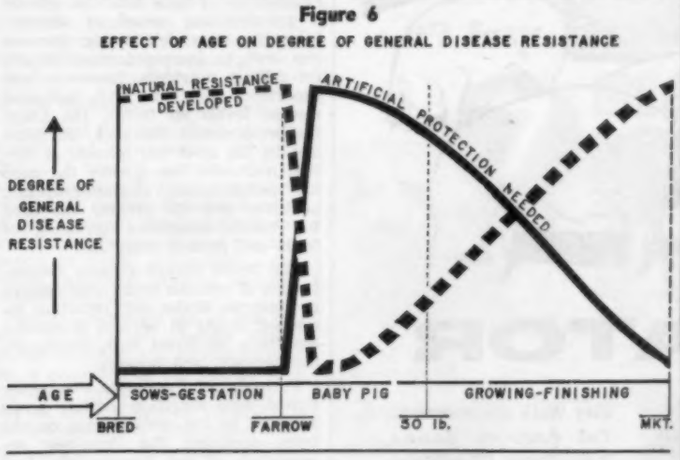



Figure 7

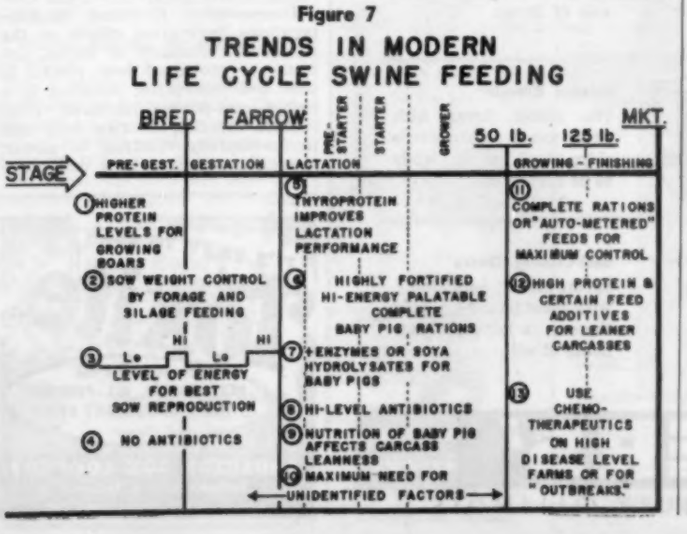

TRENDS IN MODERN LIFE CYCLE SWINE FEEDING
BRED
FARROW
MKT.
STAGE
PRE-GEST.
GESTATION
LACTATION
PRE-STARTER
STARTER
GROWER
50 lb.
125 lb.
GROWING - FINISHING
1 HIGHER PROTEIN LEVELS FOR GROWING BOARS
2 SOW WEIGHT CONTROL BY FORAGE AND SILAGE FEEDING
3 LEVEL OF ENERGY FOR BEST SOW REPRODUCTION
4 NO ANTIBIOTICS
5 HYPROTEIN IMPROVES LACTATION PERFORMANCE
6 HIGHLY FORTIFIED HI-ENERGY PALATABLE COMPLETE BABY PIG RATIONS
7 + ENZYMES OR SOYA HYDROLYSATES FOR BABY PIGS
8 HI-LEVEL ANTIBIOTICS
9 NUTRITION OF BABY PIG AFFECTS CARCASS LEANNESS
10 MAXIMUM NEED FOR UNIDENTIFIED FACTORS
11 COMPLETE RATIONS OR "AUTO-METERED" FEEDS FOR MAXIMUM CONTROL
12 HIGH PROTEIN & CERTAIN FEED ADDITIVES FOR LEANER CARCASSES
13 USE CHEMO-THERAPEUTICS ON HIGH DISEASE LEVEL FARMS OR FOR "OUTBREAKS."

Figure 8

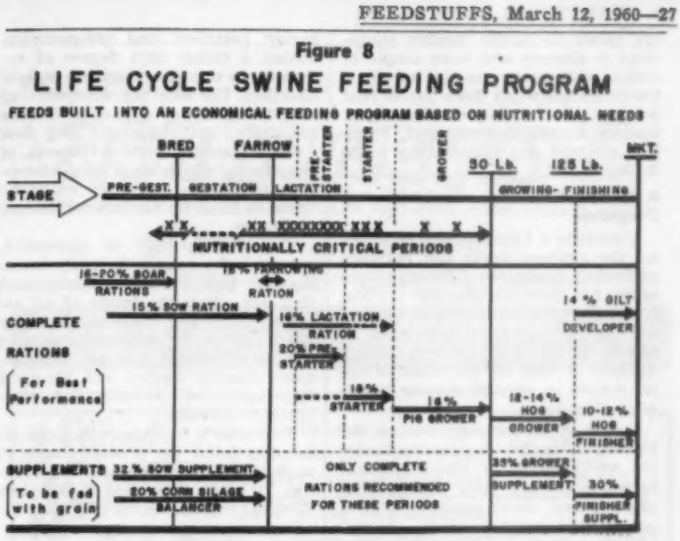



Figure 9

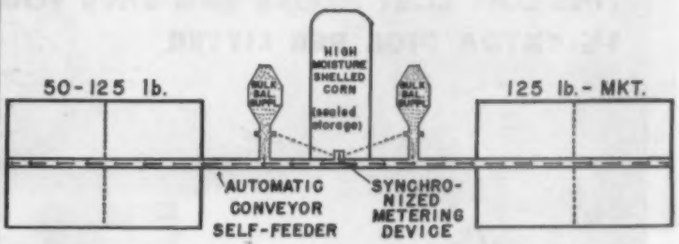
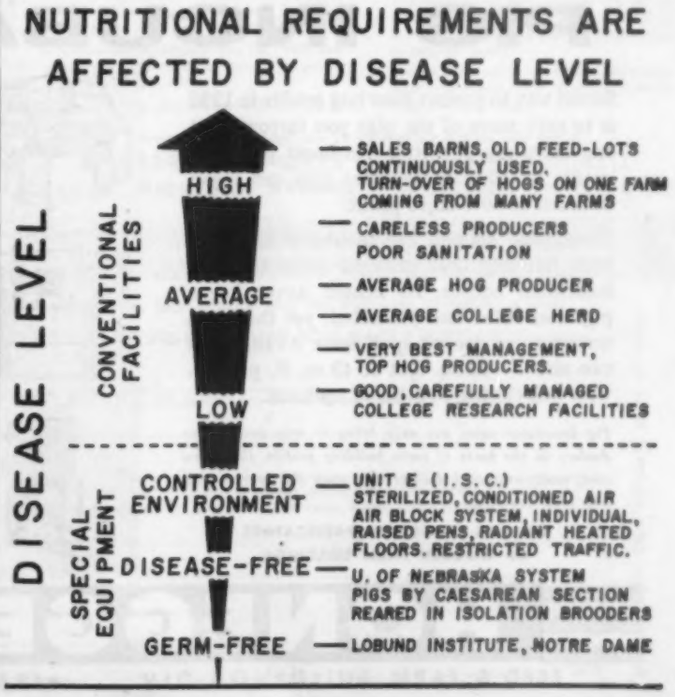

SYSTEM OF FEEDING HIGH MOISTURE CORN TO G-F SWINE
50-125 lb.
HIGH MOISTURE SHELLED CORN (sealed storage)
BULK BAL. SUPPL.
125 lb.- MKT.
AUTOMATIC CONVEYOR SELF-FEEDER
SYNCHRO-NIZED METERING DEVICE

Figure 10


NUTRITIONAL REQUIREMENTS ARE AFFECTED BY DISEASE LEVEL
DISEASE LEVEL
CONVENTIONAL FACILITIES
HIGH
AVERAGE
LOW
SALES BARNS, OLD FEED-LOTS CONTINUOUSLY USED. TURN-OVER OF HOGS ON ONE FARM COMING FROM MANY FARMS
CARELESS PRODUCERS POOR SANITATION
AVERAGE HOG PRODUCER
AVERAGE COLLEGE HERD
VERY BEST MANAGEMENT, TOP HOG PRODUCERS.
GOOD, CAREFULLY MANAGED COLLEGE RESEARCH FACILITIES
SPECIAL EQUIPMENT
CONTROLLED ENVIRONMENT
DISEASE-FREE
GERM-FREE
UNIT E (I.S.C.) STERILIZED, CONDITIONED AIR AIR BLOCK SYSTEM, INDIVIDUAL, RAISED PENS, RADIANT HEATED FLOORS. RESTRICTED TRAFFIC.
U. OF NEBRASKA SYSTEM PIGS BY CAESAREAN SECTION REARED IN ISOLATION BROODERS
LOBUND INSTITUTE, NOTRE DAME

are easier to handle, feeding equipment is cheaper and more simple in design, rations are easily fed on a restricted basis and there is less feed wastage. Possible disadvantages: Cost of automatic equipment, freezing, spoilage and maintaining solids in suspension.

**9. Designed for Life-Cycle Feeding Programs.**

Tomorrow's formulas will be based on the nutrient needs and purposes of feeding during the different stages of the life cycle, considering: (1) Nutritional carry-over effects (Figure 4); (2) the susceptibility of swine to stress during the different stages (Figure 5), and (3) the effect of age on degree of general disease resistance (Figure 6).

Based on immunology studies, the feeding of antibiotics, electrophorectic fractionation of blood proteins, hemagglutination tests and general observations, there appears to be a positive relationship of disease resistance with increasing age. Sows during gestation and pre-gestation exhibit a rather high degree of resistance to organisms causing enteric disorders. The baby pig, after nursing colostrum, carries a passive disease resistance, but exhibits a very low gamma globulin from 2-4 weeks of age, during which he is very susceptible to disease and after which he tends to build up his general disease resistance.

The development of successful, practical, dry rations for early weaning baby pigs is a major development that will affect the future of all aspects of the hog business—not only the formulas for different stages of the life cycle, but also sow management, disease control and life-cycle "pig-engineered" housing and management systems.

Tomorrow's formulas will more efficiently fulfill the present trends in modern life-cycle swine feeding (Figure 7) when built into a complete feeding program shown in Figure 8.

**10. Designed for Smarter, Larger, Specialized Producers.**

Tomorrow's more complex formulas and feeding programs will be designed for, sold and serviced to pork producers operating more carefully managed, fully capitalized, highly efficient units. We are bound to have larger, more efficient, well-managed swine producing units involving more capital and greater specialization. Scientific and technological advancements in any industry place a premium on superior management. The swine industry is no exception!

Tomorrow's swine producer is going to be a lot "smarter" customer than you are dealing with today (feed men are going to have to be smarter). Many will have had college training in swine nutrition, breeding, biochemistry, physiology and statistics. Therefore, one of the major problems and responsibilities facing the feed industry is staffing itself with well-trained manpower—"sales-servicemen" and "not just salesmen"!

**11. Complete or "Auto-Metered" Rations.**

For greater nutritional control with maximum efficiency and performance, only complete rations will be fed during the nutritionally critical periods (from farrowing to 50 lb.). For maximum control over cost and performance, tomorrow's balanced supplements will be either ground and mixed into complete rations or meter-proportioned in with grain automatically at the feed lot. The development of the "grain bank" at the medium-sized, highly-efficient, fully-automated feed plant will undoubtedly have an effect upon complete feed tonnage.

Present thinking is that there will be an increase in the harvesting, storage and feeding of high moisture grains. This makes some sense as it is cheaper to erect and maintain high moisture grain storage facilities than it is to purchase, maintain and operate grain drying equipment and dry grain storage.

It does look a little silly to dry grains down to 12-14% moisture for storage and processing, then feed them to an animal which goes over to a water fountain and fills up on water to solubilize the feed so that it can be digested!

If there is an increase in high moisture grain feeding, then tomorrow's supplements will be delivered into bulk tanks from which they will be automatically proportioned with the high moisture grain and conveyed out into feeding troughs at time intervals as shown in Figure 9.

**12. Built for Bulk Handling and for Automatic Feeding.**

Whether they are in dry or liquid forms, tomorrow's rations must be formulated to permit increased handling in the bulk form for both storage and automatic feeding. Increased labor costs combined with larger volume swine units are encouraging automation in the feed lot.

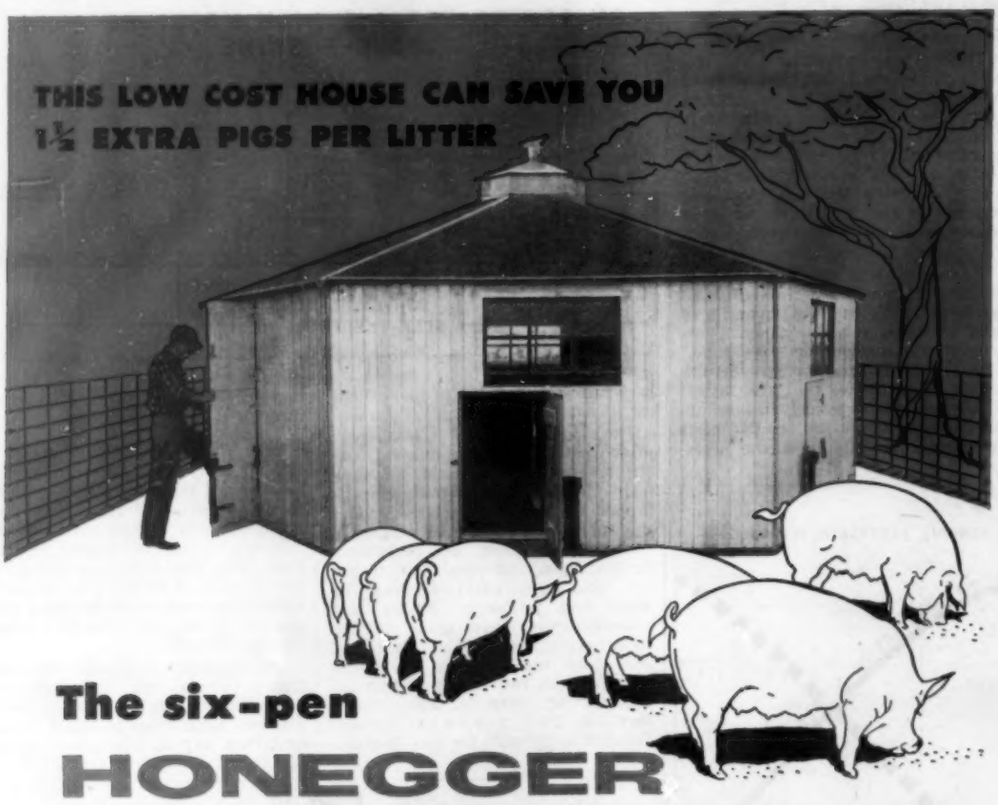
**13. Adapted to Environmental Conditions.**

**Disease Level:** There is an increased recognition of the inter-relationships of nutrition and disease (Figure 10). Faulty nutrition can be a pre-disposing cause of disease. Likewise, some debilitating diseases can lead to increased requirements for certain nutrients. Research and experience show that with increased disease levels on farms, the lower the protein-level tolerance, the more critical the level and balance of certain nutrients, the greater the need for prophylactic, chemotherapeutic additives and the greater the need for trained-manpower servicing of feeds and feeding programs.

The trend toward greater concentration of animals under confinement in concrete drylot can result in increased levels of certain diseases—especially on farms with inadequate management and housing.

Formulas of the future will be designed with nutrition-additive levels adjusted to the disease level on the farm—requiring the three-way cooperation of the farmer, the feed man, and the veterinarian.

**Temperature:** Extremes in temperatures have great effects on the production efficiency of swine. Extreme or prolonged heat results in poor sow conception, resulting in a higher cost-per-pig farrowed. Heat reduces appetite, lowering daily feed intake thereby resulting in slower, less efficient gains. Rate and effici-


The six-pen
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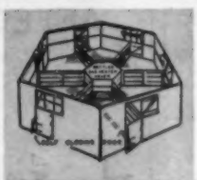
Surest way to protect your hog profits in 1960 is to save more of the pigs you farrow. Just one extra pig per litter can boost your hog profits by 10%: three extra pigs can mean as much as 50% more profit!

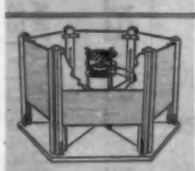
Honeggers' six-pen Pig Incubator is a prebuilt building that costs no more than six individual houses. Its heated hover keeps pigs contented and protected; yet the room temperature doesn't spoil sows. Available in two sizes — 35 sq. feet or 43 sq. ft. pens — with self-closing sow doors optional.

*Pig Incubator sales not only bring in new income for dealers in the form of farm building profits, these low cost, easily-erected buildings also open the door to new hog feed tonnage.*

WORLD'S LARGEST PREFABRICATORS OF WOODEN FARM BUILDINGS



**Easy Work Arrangement**
Two dutch-type doors make it easy for operator to care for 3 pens on each side of house.



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Spring-closed half doors, with snoot handles, permit the sow to leave or enter house at will.

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...Because it's the BEST-KNOWN, ALL-PURPOSE FARM DISINFECTANT SPRAY
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ency of gains decline rapidly in growing-finishing swine when the temperature goes above 85° F. Heat has a tremendous adverse effect on the lactating ability of sows.

Rations for the future will be formulated with nutrients and additives enabling the animal to better adjust to extremes in temperature. Research shows that growing-finishing swine, in sub-optimum temperatures, metabolize the protein in their rations to keep themselves warm—ending up with fatter carcasses. For increasing feed intake in baby pigs, artificial sweeteners work better than sugar (sucrose) in high temperatures. The riboflavin requirement of the pig is higher in cold than in warm temperatures.

Research will reveal many other inter-relationships of nutrients, additives and temperature which will permit nutritionists to adjust nutrient levels and balances and intelligently use specific additives to overcome the detrimental effects of adverse temperature conditions. The degree to which adequate housing is developed will undoubtedly affect this trend in feed formulation.

**14. "Geared" to Genetic Potential.**

Tomorrow's formulas will have to keep pace with the expected increased genetic "bred-in" potential in swine as far as litter size, lactation ability, rate of growth, efficiency of feed conversion, disease resistance and carcass leanness are concerned.

It is possible that tomorrow's formulas, containing specific additives such as hormones and enzymes, may break present genetic "performance barriers" resulting in performance exceeding that of the animal's actual "genetic-potential." Examples of this would be the development and use of addititves for improving "normal" embryonic survival, maximizing early lactation, improving the digestibility of ingredients, and increasing carcass leanness. Present research indicates some of these are possible.

Future research on the inter-relationships of nutrition, physiological chemistry, physiology, endocrinology and enzymology should provide important "animal performance" control "tools" via nutrition.

**15. For Controlled Reproduction.**

Combined research efforts of nutritionists and reproduction physiologists will develop formulas for the future, containing specific additives, which will permit controlled estrus (thereby making artificial insemination a very important and practical reality in swine production), controlled embryonic survival and controlled parturition.

Results: Increased use of the best boar germ plasm, larger litters, shorter breeding and farrowing periods, a reduction in the disease level "build-up" (which has an adverse effect on baby pigs)—all resulting in the development of a healthier, more uniform pig crop with more efficient use of "top" germ plasm, management, labor and housing-equipment facilities.

**16. Special Rations for Stress Conditions.**

Stress alters the nutritional requirements of farm animals. Nutrients such as pantothenic acid, pyridoxine, ascorbic acid, vitamin $B_{12}$, riboflavin, thiamine, choline, vitamin K, certain amino acids and trace elements are all involved. The various stress factors affecting pig performance are shown in Figure 5.

From a life-cycle viewpoint, Figure 5 shows that the stages from farrowing to 50-lb. are those during which the pig is most susceptible to different kinds of stress. Tomorrow's feeding programs will be designed to prophylactically reduce the ill-effects caused by various kinds of stress in the different stages of the life cycle. Special "corrective" rations will be formulated for extreme and specific stress conditions.

A much more carefully balanced and higher plane of nutrition is required during the "critical" stress periods—as the degree of susceptibility to stress decreases, the degree of ration fortification required decreases.

In developing a swine feeding program, consideration will be given to the degree of general disease resistance of the pig during the various stages of the life cycle. As one might expect, there is a relationship be-


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RULES FOR PRATER'S 35th ANNIVERSARY CONTEST

1. Entries will be judged on the basis of sincerity and aptness of thought.
2. By entering, the entrants agree that the decisions of the judges selected by Prater Pulverizer Company shall be final and binding. Entries will be impartially judged by a panel of qualified experts.
3. No entries will be returned and all entries become the property of Prater Pulverizer Company.
4. Contest closes midnight May 10, 1960; winners will be notified by mail or in person about June 10, 1960.
5. In case of ties, tied entrants will be required to submit an additional 25 words on the subject of "GOOD GRINDING AND MIXING EQUIPMENT Does Make a Difference."
6. Entries shall be limited to persons with operating or supervising experience in Grinding, Mixing, or both, who are residents of the United States. Employees of Prater Pulverizer Company, its advertising agency, and members of their families are not eligible. Only one entry per person will be accepted. Only one prize will be awarded to any one family.
7. Contest is subject to all Federal, State, and local regulations. Taxes, if any, are not included in the prizes.

*After you have completed your 25 words or less, mail the entry form to*
RESEARCH REPORTS CO. (PRATER CONTEST)
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PRATER'S 35th ANNIVERSARY CONTEST ENTRY FORM

In your own words, 25 or less, explain why the following statement is true:
"GOOD GRINDING AND MIXING EQUIPMENT *DOES MAKE A DIFFERENCE* because...

(Now, with an additional 25 words or less give your reasons why)

P.S.: You can discuss such factors as quality, performance, time-savings, customer satisfaction, greater nutrient value, higher earnings, etc.

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tween age and degree of general disease resistance, as indicated in Figure 6. Research shows that the baby pig from 2-4 weeks of age has a very low disease resistance. Therefore, he needs the greatest amount of artificial protection by application of adequate nutrition (including specific prophylactic additives) along with good management, careful sanitation, proper housing and equipment.

Tomorrow's formulas will be "tailor-made" to prevent and combat variations in "stress-level" found on different farms.

**17. Emphasis on Feed Efficiency.**

Greater emphasis will be placed on not only feed efficiency but also the cost per pound of gain—especially in growing-finishing hogs which have higher feed requirements. Tomorrow's formulas — more scientifically balanced nutrient-wise, including special additives—will no doubt provide improved feed efficiency at lower costs. The emphasis on feed efficiency will not only be reflected in the formulas that the feed manufacturer builds but also on the kind of grain produced on the farm—and, how both will be fed.

From farrowing to market (because of the high feed requirement of lactating sows, the necessarily higher priced baby pig feeds and the high feed requirement, accompanied by the natural poorer feed efficiency, of the larger growing-finishing hogs) there will be a greater emphasis on feed efficiency in tomorrow's formulas fed throughout these periods of the life cycle.

**18. Designed for Leaner Carcasses.**

Leaner carcasses will be achieved not only through the formulation of tomorrow's rations (what is in them) but also in the method they are fed (automatic, limited-feeding of growing-finishing swine).

Present research indicates that the heritability for leanness of carcass varies considerably—14 to 76% (average 31%). Not only is it variable, but breeders find it difficult to maintain high "fixed" heritability for carcass leanness. Even one "bad" boar can ruin one or more pig crops from years of breeding efforts.

Most animal husbandry people have sold "short" the roles played by nutrition and its management in producing lean pork! If genetics influence carcass leanness only 31% (average), then there must be plenty of opportunity for other influencing factors such as nutrition and its management.

Most of the present breeding stock on farms lack the heritability to produce maximum leanness in carcasses, especially when full-fed balanced rations. Until geneticists scientifically develop animals with persistent "bred-in" ability to produce lean carcasses under full feeding, then automatic, limited feeding will provide another means of producing leaner carcasses. Limited feeding, by hand, has been practical for years throughout Europe, even in Denmark, the "epitome" of efficient lean pork production where over a half century of effort has been invested in developing a genetically lean hog.

From the standpoint of nutrition, the basis for producing lean carcasses starts with the baby pig. Recent Danish research proves that the nutrition of the baby pig up to eight weeks of age, especially during the first four weeks, definitely affects his final carcass leanness.

Tomorrow's formulas for growing-finishing swine (50 lb. to market) will be designed for producing leaner carcasses through the use of adequate levels of protein (carefully balanced with amino acids), balanced protein/calorie ratios and with special feed additives.

**FACTORS AFFECTING TOMORROW'S FORMULAS, FEEDING PRACTICES AND PROGRAMS** — Most alert feed men see these trends in "tomorrow's formulas," feeding practices and programs, but—what factors will affect these trends?

Here is a brief enumeration of these influencing factors from the standpoint of: First, the feed industry; second, the farmer, and third, the consumer (public).

**At the Feed Industry's Level:**

1. FDA laws, regulations, their interpretation and enforcement—ability to get "scientifically sound" feed and food laws capable of being fairly and justly administered to permit nutrition progress with safety. These can restrict ability of feed industry to build most efficient feeds for the farmer.

2. Quality of manpower—recruiting and training men with ability, ideas, vision, integrity, desire to learn and serve and the will to work.

3. Use of research facilities—to develop the right feeds and feeding programs, not used as just a "talking-point" or "show-place."

4. Rendering customer service — amount and quality rendered the swine producer through volume purchasing of quality-controlled ingredients, properly processed into scientifically-balanced rations, proven by applied research and combined into life-cycle feeding programs adapted to and serviced at the feedlot.

5. Public relations—with governmental agencies, colleges, veterinarians and the public.

6. Efficiency of manufacturing and distribution—ability to cut costs by applying the latest science and technology.

7. General technological developments in agriculture—affecting the farmers' needs from feed industry.

8. Flexibility — ability to change (both products and service) with the times and the needs.

9. Inter-industry cooperation — affecting the ability to develop a strong "front" to protect the interests of both the industry and its customers.

**At the Farmer's Level:**

1. FDA laws and regulations—control feed additives, feed "efficiency-tools" used by the farmer.

2. Farmer's education and managerial ability is increasing—he can


# You can sell best

## ...and customer satisfaction "comes in Burlap!"

**Have you ever added up the inducements you can offer when you sell sacked feed in burlap? They can help you in selling. Here they are:**

1. *A discount* on every ton of feed, when the mill provides a return-bag program.
2. *Simplified inventory* for the customer.
3. *Identification* for medicated feeds.
4. *Non-separation* of formula-ingredients.
5. *Your prices* are competitive with returnable burlap bags.
6. *Service*...you can give small customers as good delivery service as large customers (and on the same route).
7. *Bulk customers* can be served with bag-to-bulk trucks.
8. *Quantities* can be bought *as needed.*
9. Feed in burlap bags is *sanitary and free from contamination.*
10. *Accurate weights* are assured in a burlap bag.
11. *Fifty-pound* as well as 100-lb. bags can be offered.
12. Farmers have many uses for empty bags...only burlap serves them so well!

**Quite a few selling-points, don't you agree? Next time you're selling a new customer, remember there's a lot to be said for burlap bags!**

*Just ask your own customers—they'll tell you that burlap*

**Is strong** — takes dragging, dropping, *man-handling* — any tough job on the farm.

**Laughs at sudden showers** — wetness or dampness can't weaken it.

**Saves money** — extra value from re-sale and re-use.

**Gives good ventilation** — keeps farm supplies and products fresh.

**Saves storage space** — stacks to any height without slipping.

**Has 1000 uses** — always in demand on the farm (popular with farm wives, too!)

IF YOU USED PETERSON MALES YOU WOULDN'T NEED SO MANY!

**PETERSON**
**breeding farm**
DECATUR, ARKANSAS

handle more complex feeding programs.

3. Use of time by farmer—greater returns for management (studying, getting ideas and making decisions) than for use as labor, such as mixing his own feeds.

4. Larger, fewer farms with greater investment—increased investment in land, buildings, equipment, machinery and livestock places a greater premium on farmers' managerial ability.

5. Availability and use of capital—demands "timely" decisions on use of capital as "fixed" (for land, buildings and equipment) or as "working" capital (for breeding stock, feeds, fertilizers, labor, etc.).

6. Relative technological development in different areas of agriculture.

a. In grain and forage crops—breeding, fertilization, irrigation, harvesting, storage.

b. In different livestock and poultry—breeding, physiology, nutrition, disease and parasite control, marketing.

c. In agricultural engineering—controlled environment (housing), automation, equipment.

7. Government agricultural policy—both domestic and foreign.

8. Market price differentials for quality—in meat, milk and eggs. Will the farmer get paid for it?

9. Geographical effects on production costs—land, labor, feed, animals, buildings and equipment.

10. What makes the farmer the most money?—This is the principal deciding factor!

**At the Consumer's (Public) Level:**

1. Food needs—rate of population increase, in the U.S. and the world.

2. Food purchasing power—consumer income and over-all standard of living.

3. Use of food—status of the world (peace or war), government programs (P.L. 480).

4. FDA laws and regulations—public reaction. Also, it's possible to ruin the farmer's market for animal products by unjust legislation, enforcement and publicity. In the future consumers may have to make a choice in their purchases of meat, milk and eggs:

a. Lower priced, more wholesome products from healthier animals (with less disease)—but possibly containing feed additive residues scientifically proven harmless, or

b. More expensive, less wholesome products from less-healthy animals (with more disease)—but free of feed additive residues, even though scientifically proven harmless.

5. Medical research findings—on diseases associated with diet (heart and circulatory diseases with certain dietary fats).

6. Impact of promotion and advertising—on relative consumption of different foods.

7. Consumers' demands in meat, milk and eggs—quality and/or price.

These are the factors which will affect the development and use of "Tomorrow's Formulas" in life-cycle feeding programs in maximizing profits in pork production.

"I understand you're raising chickens on the side now, Slim."

## Pelleted Lamb Rations Studied at Oregon

CORVALLIS, ORE.—Results of lamb fattening trials concerned with evaluation of pelleted high-roughage rations have been reported at Oregon State College.

In one experiment, wether lambs were fed 65 days on a high roughage pellet (60%) supplemented with a chemobiotic (Dynafac), and antibiotic (oxytetracycline) and a tranquilizer (hydroxyzine) singly and in all combinations.

Oregon researchers reported that lambs on the control ration averaged 0.47 lb. gain per day. They said that analysis of the data indicated that supplementation with these additives could not be expected to improve lamb performance on the ration used.

In another experiment the hay incorporated into a high-roughage pellet was ground through various sized hammermill screens. In the first trial the roughage in the pellet (40% alfalfa hay, 20% grass hay) was ground through 5/32 and 9/32 in. screens. In the second trial the roughage (30% alfalfa hay, 35% grass hay) was ground through 3/32, 3/16 and ¼ in. screens and incorporated into ¼, ⅜ and ½ in. pellets.

Researchers said that in neither trial was there any significant effect of fineness of grind on average daily gain, although lot means in each trial favored the smaller screen sizes. They also said there was no significant influence of pellet size, although lot means were slightly higher where the larger pellets were fed.


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# CCC Announces Townhall Meeting Set To Discuss All Aspects of New UGSA

WASHINGTON — The Commodity Credit Corp. has announced that a townhall meeting, to discuss all aspects of a new Uniform Grain Storage Agreement, will be held in Kansas City on March 30, reported the Grain & Feed Dealers National Assn.

The meeting will be open to anyone who desires to attend. The general meeting for the trade will be preceded by another session of the trade representatives and CCC in Washington on March 15-16.

The UGSA conferences to date have not led into a discussion on rates, reports GFDNA. At the Feb. 11-12 meeting, CCC officials only briefly mentioned rates at the close of the session. Nearly all of the conference time was spent on language of the agreement. According to GFDNA, major differences exist in these several sections between the trade representatives and CCC:

● CCC was still opposed to considering that warehousemen not be charged for quality deficiency resulting from breakage of corn, soybeans, and grain sorghums if such breakage is unavoidable and not the result of failure to exercise due care.

● CCC still has not proposed language that would give grain warehousemen adequate protection from future actions of the Food and Drug Administration. CCC is becoming more alert to the problem, and has indicated a willingness to consider the seriousness of the situation.

**CCC Proposal**

● CCC proposed dropping the premium quality accruals on Dec. 31 following the year grain was loaded out. This is one year longer than CCC's proposal in December. If the above proposal was adopted, CCC officials said that the 1957-58-59 premium quality accruals could run until Dec. 31, 1961, before being cut off.

● CCC gave no ground in their refusal to consider that CCC shall not transfer warehouse receipts to a third party without obtaining prior consent of the warehouseman. It is expected that state associations and individual warehousemen will present additional information on this subject at the townhall meeting to strengthen the position of the trade representatives.

● CCC made no rate proposals at the Feb. 11-12 meeting. CCC distributed a new set of charts that show a reduction in the cost study from the rapid tax amortization schedule to a normal depreciation schedule. This makes a considerable difference in the CCC cost statistics. GFDNA reproduced the new charts—a copy will be mailed to any member upon request. Clarence Palmby, chairman of CCC's negotiating committee, said that CCC would like to continue on a uniform rate between country and terminals. He said this could only be possible if the terminals were denied an increase in handling rates (even though the cost study shows their handling costs are higher than the current rates) and if CCC explored reducing the country handling rates for wheat. The chairman said the CCC would expect more responsibilities from the warehousemen, and the government would be willing to pay for these services. He still indicated storage rates will be lower in the next agreement. The country elevator representatives and the other trade representatives stated no position as to rates as that subject will be explored at the March 15-16 meeting.

## I. Levin Outlines Consulting Services

DES MOINES, IOWA — I. Levin, who recently resigned as state chemist for the Iowa Department of Agriculture, has outlined his services in connection with his newly-formed feed label and consulting service.

"It is my thinking that there is a need for someone with experience to assist feed mixers and feed ingredient and feed additive manufacturers, who do not have full-time staffs, in preparing label copy acceptable to federal and state control officials, and to take over the complicated and onerous task of registering these products in the several states with the Food and Drug Administration," said Mr. Levin.

Mr. Levin notes that this is parallel to the services obtained from experts in the field of taxes, bookkeeping and advertising.

Mr. Levin says that this service "will expedite registration procedures for both the feed trade and control officials, will save time and money and will release technically trained personnel to the tasks for which they were engaged."

## *Stockton Inspections*

STOCKTON, CAL. — Judging by the number of grain inspections, this port city is getting a good share of the grain volume in the state. Under the Grain Standards Act, the Bureau of Field Crops made the following inspections during 1959: Stockton, 21,234; Imperial, 6,965; San Francisco, 3,840; Sacramento, 3,406; Vallejo, 3,361; Petaluma, 3,146; Corcoran, 3,035, and Los Angeles, 2,765.

Although the Los Angeles Grain Exchange has an inspection department its statistics are not included in the above listings.

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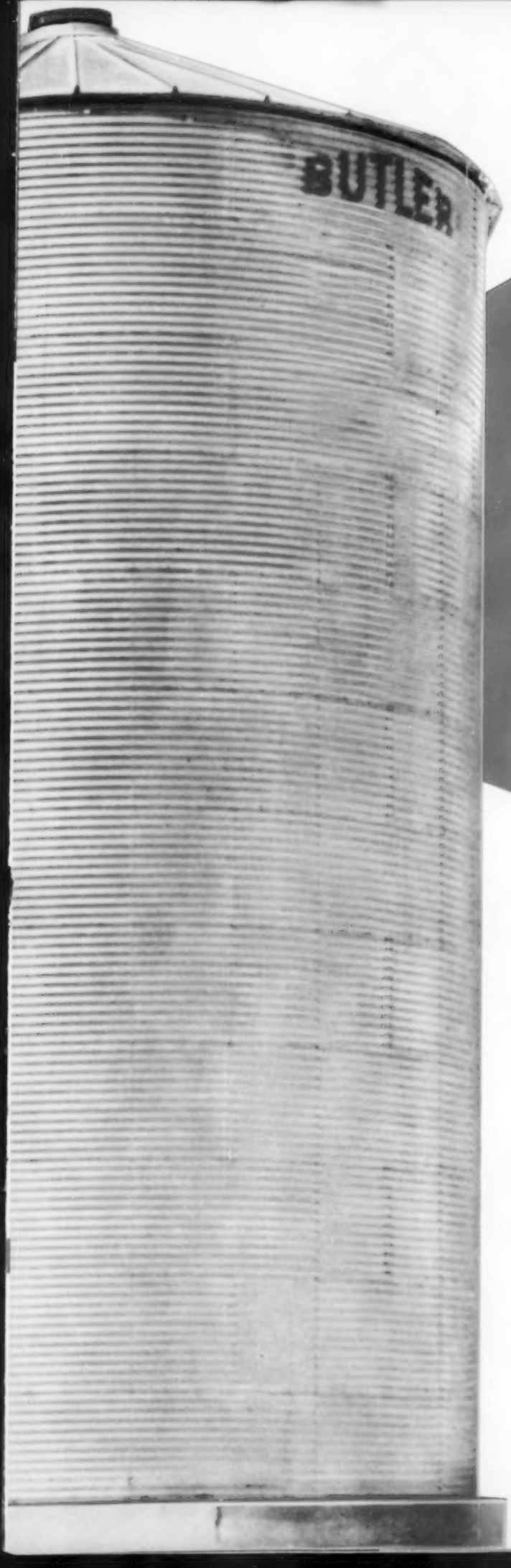


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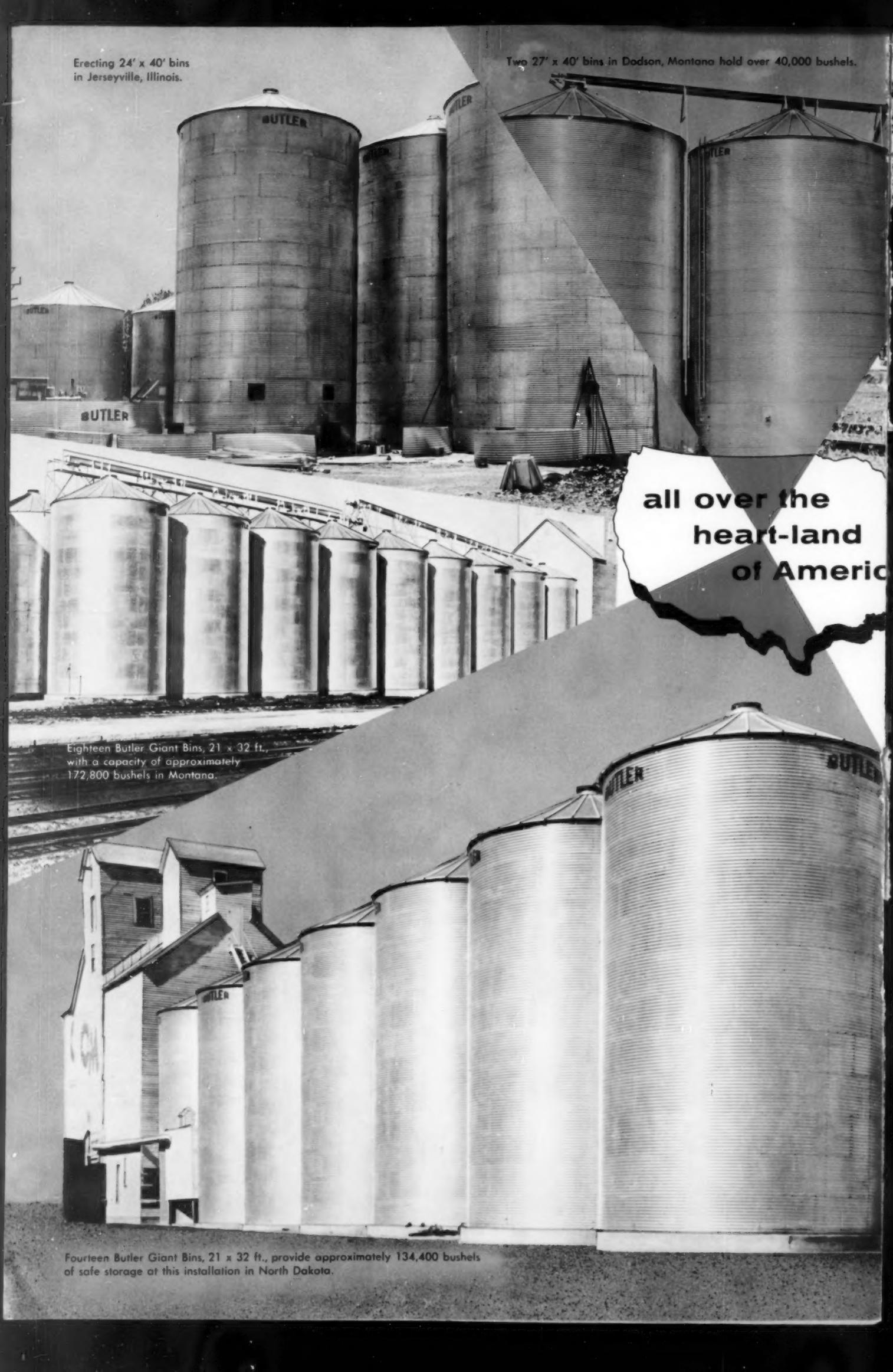
Butler Bins give you big volume safe storage at a cost-per-bushel no other bin storage can better. They can be erected in just days, providing up to 36,000 bushels of weather-tight, fire-safe storage per Giant Bin.

But these important storage features do not tell the whole story. Butler Giant Bins make it easy to segregate, grade and store grain. Automatic handling equipment can be installed on all models to reduce operating costs and assure efficient turning of grain as needed.

There's proof in acceptance. What do others in your business think of Butler Giant Bins? You'll see a few examples inside!


Erecting 24' x 40' bins
in Jerseyville, Illinois.
Two 27' x 40' bins in Dodson, Montana hold over 40,000 bushels.
BUTLER
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heart-land
of Americ
Eighteen Butler Giant Bins, 21 x 32 ft.,
with a capacity of approximately
172,800 bushels in Montana.
Fourteen Butler Giant Bins, 21 x 32 ft., provide approximately 134,400 bushels
of safe storage at this installation in North Dakota.

Eight 24′ x 24′ Butler Giant Bins store nearly 80,000 bushels of grain in Missouri.

# BUTLER GIANT BINS

## handle big volume of grain at low cost

From the Red River Valley of the North to the flatlands of the Gulf Coasts, from the high West Texas plains to Indiana's level corn fields . . . you'll see them rising. New Butler Giant Bins . . . singles, in pairs or in dozens . . . entrusted with a flood of golden grain . . . chosen by grain storage men *in business to make a profit*. Here are some of the reasons why these installations are *Butler* Giant Bins . . .

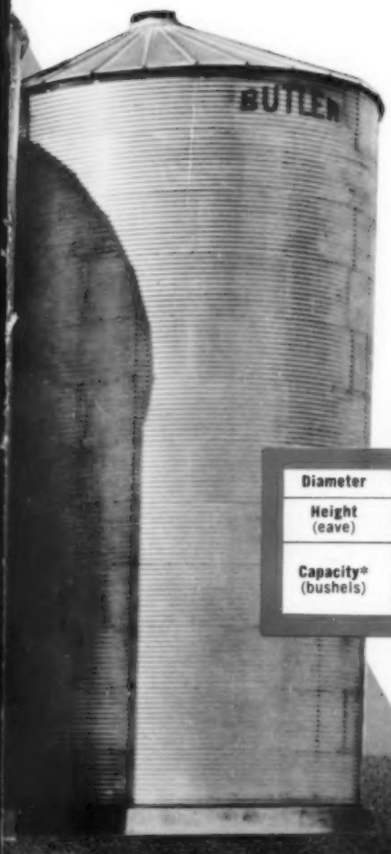
**BIG VOLUME STORAGE**. . . models up to 36 feet in diameter, as high as 40 feet at the eave. The biggest Butler Giant Bin holds over 36,000 bushels!

**LOWEST-COST, SAFE STORAGE** . . . grain is stored safe from weather, insects and rodents—at an extremely low cost per bushel.

**EASY TO MAINTAIN** . . . aeration, fumigation and cleaning are all relatively simple in a Butler Giant Bin. Automatic handling equipment can be installed on all sizes.

**WIDE RANGE OF SIZES**. . . lets owners tailor storage to fit specific needs, makes it easy to segregate, condition and store various types and grades of grain.

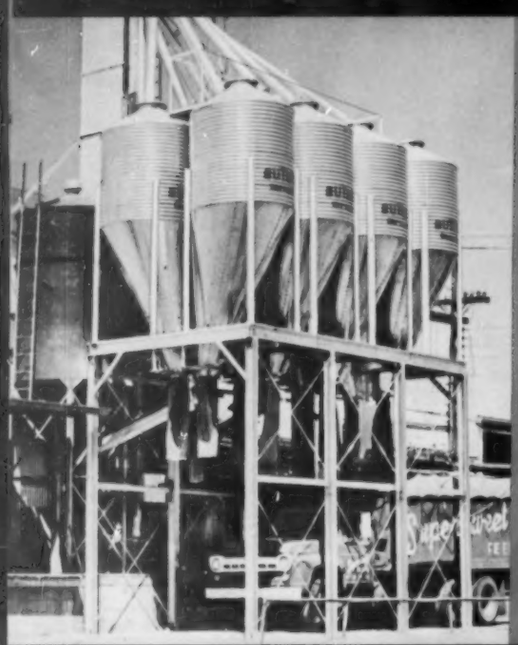
**BETTER BUTLER CONSTRUCTION**. . . designed and built of heavy galvanized steel for safest storage, longest life.

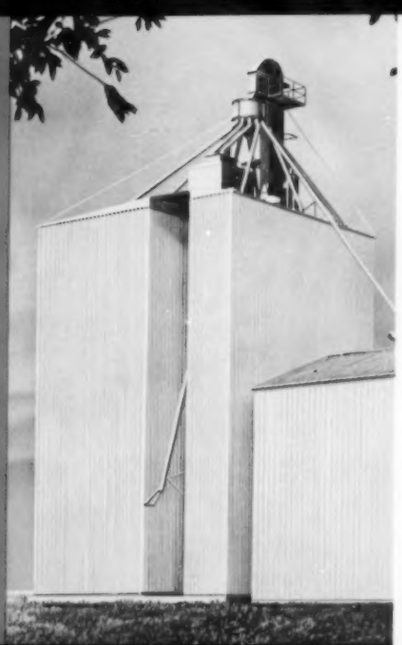



| Diameter | 18 | 21 | 21 | 24 | 24 | 24 | 24 | 24 | 24 | 27 | 27 | 27 | 36 | 36 | 36 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Height (eave) | 16′ | 18′8″ | 32′ | 16′ | 18′8″ | 21′4″ | 24′ | 32′ | 40′ | 24′ | 32′ | 40′ | 24′ | 32′ | 40′ |
| Capacity* (bushels) | 3,600 | 5,700 | 9,600 | 6,700 | 7,700 | 8,700 | 9,700 | 12,700 | 15,700 | 12,500 | 16,300 | 20,100 | 22,700 | 29,600 | 36,400 |

*Maximum capacity is determined by adding grain compaction factor, based on 60 lbs. wheat or beans to cubic measure, and filling under roof above eave. Compaction factor will vary by the test weight, type of grain and depth of grain stored.

## Buildings, bins, bulk or bolted tanks...





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There's a Butler storage expert near you who is an expert in planning and building both flat and vertical structures. He knows the special problems of construction in your area – including local materials availability, soil conditions, and other factors that influence storage construction.

He's prepared to handle the whole job – from planning to completion. He's a respected, established businessman.

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## Corn Belt Holding Own in Livestock

AMES, IOWA—The heart of the Corn Belt is more than holding its own in production of corn and hogs and is roughly keeping pace in cattle production, according to Dr. Geoffrey Shepherd, agricultural economist at Iowa State University.

There was some concern before 1959, he said, that corn acreage controls coupled with the denying of loans to non-compliers might be driving some corn production out of the Corn Belt. Some also thought, Dr. Shepherd added, that the substitution of corn for government-controlled crops, such as cotton and wheat, was increasing the corn production outside the commercial corn area.

Only four states are all, or nearly all, included in the commercial corn area. Those are Iowa, Illinois, Indiana and Ohio. The corn acreage in these four states has moved upward relative to the other states, Dr. Shepherd said.

This tendency increased even more in 1959 when the new loan rates for corn went into effect along with the abandoning of acreage controls and loan restrictions to compliers, he added.

In 1959, corn production was more concentrated in the four central Corn Belt states than ever before, he said. These four states are also just about holding their own in oats production, he added.

The pig crop in the past few years in the four Corn Belt states was about 10% larger than in 1940 to '49 period, Dr. Shepherd said. But the pig crop in the rest of the nation declined about 10%. Thus, hog production is becoming more concentrated in Iowa, Illinois, Indiana and Missouri, Dr. Shepherd continued.

Cattle production in the four Corn Belt states is just about holding its own. The cattle "index" for these states ran 5-10% lower than the national average until 1957, he said. In that year the index rose 6% above the average for the other states. The two indexes were practically the same in 1958.

## Executive Development In Management School Dates Are Announced

ATLANTA, GA.—The annual Executive Development in Management program sponsored for the poultry industry will be held again this year in three one-week units. The first unit is scheduled for April 24-28, with the following units Aug. 14-18 and Oct. 16-20.

Joe M. Tankersley, president of the sponsoring organization, the Southeastern Poultry & Egg Assn., listed the subjects to be discussed and studied the first week as follows: Creative thinking, financial and business policy, administrative practices, egocentric predicament, bank financing, developing salesmanship, analyzing poultry statistics, business forecasting, five functions of management and intra-company communications.

The agenda for the second and third units will be set up by the participants in unit I according to their needs.

The school is especially designed to provide business management know-how to poultry problems. "This management course has proved extremely effective in helping executives translate the newest management concepts into practical working tools and applying them to everyday operations," Mr. Tankersley said.

The school is open to anyone in the top management level and can be taken one unit at a time, or participants can sign up for all three units. Tuition for the three units is $350 or $150 per unit when taken separately. Cooperating with the Southeastern Poultry & Egg Assn. in sponsoring the program is the University of Georgia

Advanced reservations are required. Additional information and reservations may be obtained from Harold E. Ford, executive secretary, Southeastern Poultry & Egg Assn., 235 E. Ponce De Leon Ave., Decatur, Ga.

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again last year . . .

MORE TURKEYS WERE CARB-O-SEP PROTECTED* THAN EVER BEFORE

*against blackhead

**That's right — each year** — more and more turkeys are being CARB-O-SEP-protected.

1959 was — in fact — a banner year. More turkeys received CARB-O-SEP protection in 1959 than in all the previous years put together.

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**—feed efficiency**
**—weight gains**

This has been true of the results obtained in regular farm use . . . in tests at the college experiment station level . . . and in tests conducted by feed manufacturers and growers.

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# Tests to Determine 'Pellet Hardness'

By F. J. McCormick and J. A. Shellenberger
Kansas State University

**INTRODUCTION**—The hardness of feed pellets and the measurement of this property have practical significance from several viewpoints. The power required to compress a unit of feed ingredients into pellets of definite size is one important aspect, while another is the relative cost of pelleting machine maintenance, including die wear as influenced by the hardness of the pellets produced. Pellet hardness is also thought to be related to breakage during handling, especially in bulk deliveries. A fourth consideration involves the relationship of hardness to the physical, chemical, nutrient value and feeding acceptability alterations which heat, pressure and time produce on pellets. The scientific appraisal of these considerations depends on a standard reliable measurement of pellet hardness.

The term "hardness" is commonly used to describe that characteristic of a feed pellet which prevents it from breaking into undesirably small particles. For everyone, this term has some intuitive meaning, but to be of value in measuring a physical characteristic of a pellet, it must have more than intuitive meaning; it must be measurable in numerical terms.

The desirability of being able to express in some numerical terms the physical strength of feed pellets is unquestioned by manufacturers of pellets, the operators of pellet mills, those engaged in the handling operations and the stock feeders.

**GENERAL DISCUSSION OF HARDNESS TESTS**—A large amount of oral effort has been devoted to the topic, but little has been accomplished toward the development of a reliable standard of evaluation for pellet hardness or, more precisely, strength. Correspondence and interviews with a number of feed producers over the country lead one to the conclusion that, even though some have purchased or developed rather sophisticated devices and others are using crude home-made ones for testing their product, the results are often of little value or are difficult to interpret.

*EDITOR'S NOTE: The senior author of the accompanying article, Prof. Frank J. McCormick, obtained his B.S. and M.S. degrees in applied mechanics at Iowa State University. He has been on the Kansas State University staff since 1939 and his special field of interest is in the strength of materials. Dr. J. A. Shellenberger is head of the flour and feed milling industries department. The article is catalogued as Contribution No. 331, department of flour and feed milling industries, Kansas Agricultural Experiment Station, Manhattan.*

Because of the present unsatisfactory means for measurement, the authors undertook a preliminary study of the subject. The study was confined to a consideration of so-called hard pellets. In handling such pellets it appeared that they were generally weaker in tension than in shear. By twisting them between the fingers a spiral fracture usually resulted, confirming this belief. Materials exhibiting this characteristic are usually considered "brittle materials." Since it is impractical to perform direct tensile tests on pellets, and in fact on most brittle materials, the first test chosen was a bending test.

**FIGURE 1. Exploded view of loading device used for bending, compression and indentation tests.**

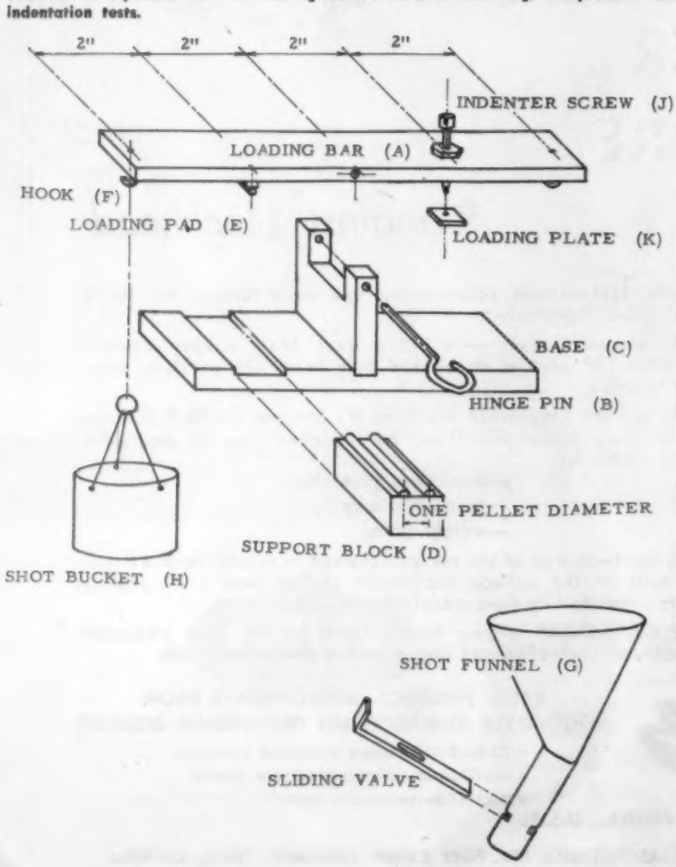
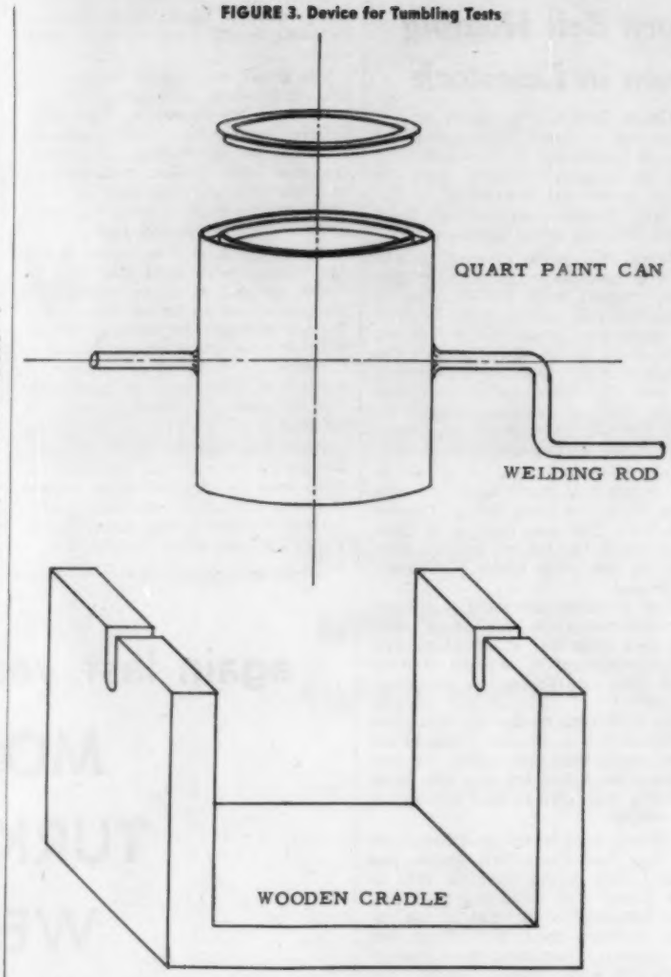



**FIGURE 3. Device for Tumbling Tests**




By use of a bending test, it is possible to obtain an indirect measure of the tensile strength of a brittle material through computation of the modulus of rupture. This will be an accurate measure of the tensile strength only if the material remains elastic to failure, as the modulus of rupture is merely the stress given by the elementary flexure formula,

$$S = \frac{Mc}{I},$$

where M represents the value of the maximum bending moment, c the radius of the pellet, and I the moment of inertia of the cross-sectional area with respect to a diameter. The flexure formula is, of course, based on elastic behavior of the material and, even though the material may be elastic for a part of the loading cycle, there are few materials exhibiting linear behavior to failure. Nevertheless, the modulus of rupture does give a good indication of the strength and is widely used in the study of structural materials. A device for conducting bending tests was constructed and is described later.

Hardness in metals is usually interpreted to mean resistance to indentation as measured by the depth or area of the indentation formed by a standard point and load. Several devices and procedures have been standardized for performing such tests, none of which seemed to be applicable to materials with the characteristics of feed pellets. The apparatus used for metals was too massive and the applied loads too large. No standard instrument that could be readily adapted was found. The microhardness testers cover such a small area that with them only the characteristics of a particle, rather than those of a pellet as a whole, could be determined. For studying the transformation of any given constituent through the process of pelleting, microhardness testers might prove useful. The loading device used in the bending test was adapted for use as an indentation hardness tester by equipping it with an indenter.

Compression, both longitudinal and transverse, was tried. This manner of loading in the transverse direction is in rather common use among feed producers. Compression testing is deceptively simple, in that there is no easier test to perform badly and none much more difficult to perform with any degree of validity. In longitudinal compression the ends of the specimen should be plane and parallel. It would be desirable to have the ends capped always with the same material in order that the friction between specimen and the loading head be constant. The head should be fitted with a spherical bearing. Even with such precautions, the results depend on the proportions, in fact, they depend on the dimensions of the specimen.

In longitudinal compression, it was found that some otherwise hard pel-

**FIGURE 2a. Schematic diagram of pellet as loaded in bending tests.**

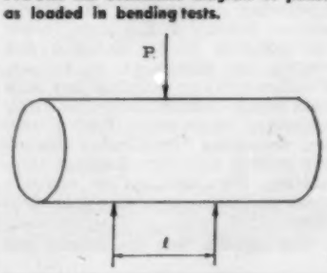



**FIGURE 2b. Schematic diagram of pellet as loaded in transverse compression, showing tensile stress on diametral plane.**

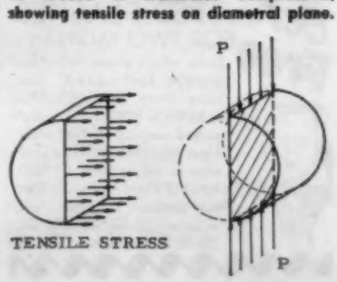


**FIGURE 4. Plot of tensile stress as computed from transverse compression test against modulus of rupture in bending.**

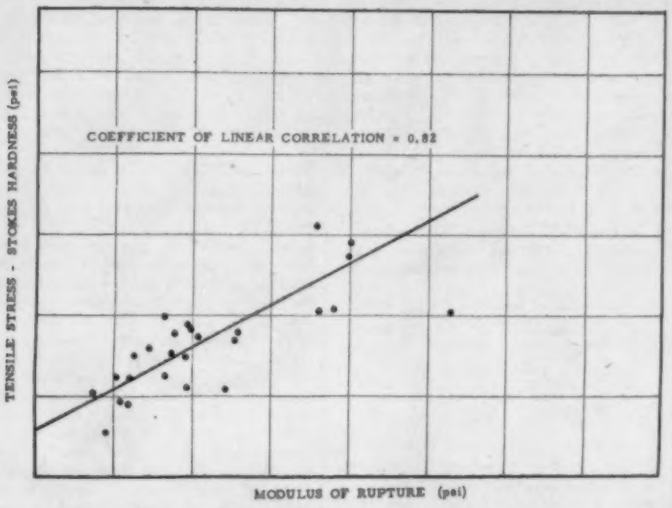
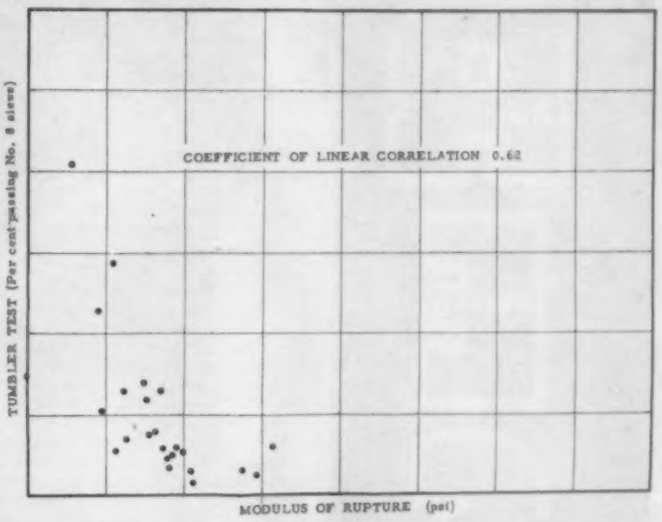



**FIGURE 5. Plot of percentage fines produced in tumbler test against modulus of rupture in bending.**




lets did not break at any definite load but continued to deform with any load that was maintained for a considerable length of time. Creep measurements made with compressive loading were suggested by this phenomenon. Several such measurements were taken, but lack of ability to interpret the results caused this effort to be abandoned.

Historically, one of the first hardness tests was a scratch test in which a standard series of materials, each of which would scratch the one below but not the one above it in the series, was used as a hardness scale. This was, and still is, used by geologists in a study of minerals. It has been adapted to other materials by using a different series of standards. It was tried on pellets using a series of drawing pencils of different hardness.

A shearing test has been suggested. This was not used for two reasons. It is not believed to be very significant in view of the relatively lower tensile strength of most pellets and, too, it is rather difficult to devise equipment for making a valid test. With bolts and rivets, transverse shear tests of a sort are rather simple. Bolts are quite uniform in diameter and rivets are driven to fill the hole. The diameters of feed pellets, on the other hand, vary widely not only from the nominal but also individually within any given lot. This variation in diameter makes it impracticable to build a jig for transverse shear tests in which bending must be minimized. Torsional shear is difficult because of end conditions, and longitudinal shear, if significant, would show up in any short beam test. Any other logitudinal shear test would require elaborate preparation of the specimen.

Many of the tests described above give at least a qualitative and at best a quantitative indication of certain physical properties of the pelleted material. None subjects the pellet to conditions approximating mill conditions of handling—conveying, elevating, falling, etc. In order to simulate these conditions, several shaking and tumbling test procedures were tried with varied results, using the percentage of fines as a measure of hardness.

Another test which might have proved useful and informative was an impact test in which the energy required for failure would have been measured. Such tests are usually conducted in tension or bending. For the longer pellets bending would be practicable, but with the mill run on some types, such a test would be out of the question because of the short length of the specimens. Tensile tests offer little hope. The real reason that no impact tests were tried lay in the considerable time required for the development and construction of a satisfactory device for the purpose.

## TESTING TECHNIQUES

**Bending tests:** Examination of representative samples of pellets indicated that bending on a span greater than one diameter would not always be possible. In fact, in some lots it was difficult to find a sufficient number of pellets with an over-all length of two diameters. This length was considered the minimum desirable for any bending test using a one diameter span. The device illustrated in Figure 1 was constructed primarily to perform bending tests using the pellet as a simple beam loaded at the center of the span with one concentrated load. As shown in Figure 1, the base (C) supported a loading bar (A) which was balanced on hinge pin (B) and to which was fastened a loading pad (E) of 3/32 in. diameter. To the support block (D) were soldered two circular rods, also 3/32 in. in diameter, on centers equal to the nominal diameter of the pellet to be tested. The block was centered under the loading pad and was of such height that, with the pellet in place and the loading pad brought into bearing, the loading bar was horizontal and parallel to the base. Support blocks were made for pellets of 5/32, 3/16, ¼ and ⅝ in. diameters. The load was applied by means of a shot bucket (H) supported from the hook (F) and loaded through the shot funnel (G). The flow of shot was controlled by the sliding valve which was closed by hand as soon as fracture of the pellet was noticed. With the equipment used, the load was applied at the rate of 2.65 lb. in 10 seconds. The method of loading is diagrammatically illustrated in Figure 2a.

The modulus of rupture was computed using the average measured diameter for ten pellets and the average breaking load for 20 pellets in any one sample. Values so determined ranged from 74 lb. per square inch, for pellets of very low strength, to 536 lb. per square inch, for the strongest of the pellets tested.

**Indentation tests:** For indentation tests the loading bar (A) as shown in Figure 1 was reversed and the indenter screw (J) was inserted. The indenter shown in the figure and the one finally used was supplied with a 3/32 in. diameter ball tip. Another was made with a conical tip, but this could not be used because it caused breakage of the pellets with no measurable penetration. It was impossible to measure the diameter of the indentation formed by the ball because of the surface characteristics of the pellets; therefore the depth of penetration was measured by means of a dial gauge whose plunger was placed in contact with the top of the indenter screw. The spring of the dial gauge applied a load of 0.27 lb. With this pre-load in place, the dial was set to zero. An additional dead load of 2.00 lb. was applied and held for 10 seconds, after which the penetration was read on the dial gauge. For each lot so tested, 10 specimens were selected and two readings were taken on each. After a few tests, it was apparent that the depth of the indentation bore little relation to strength, however measured, and these tests were discontinued. The averages of the readings taken are shown in Table 1.

**Compression tests:** The loading device of Figure 1 was adapted to longitudinal compression tests by the addition of the loading plate (K) which was used in combination with the ball tipped indenter. This gave a spherical bearing for the loading head. Some pellets that could be squared on the ends by sanding or cutting were prepared with a length of one diameter and loaded axially. Most did not break at any definite load but deformed plastically with increasing load. No data were recorded.

The behavior just described suggested compression creep measurements and a few such measurements were recorded. Arbitrarily, a load equal to half the modulus of rupture multiplied by the cross-sectional area was used. When deformation was plotted against time on semi-logarithmic paper, a straight line resulted. Several such plots were made which first indicated that strength and the slope of the line might be related, but such startling exceptions were later found that no interpretation seemed possible. No data on these tests are included in this paper.

For transverse, or diametral, compressive testing, the Stokes Hardness Tester was used. This consisted of a calibrated spring pressing on the frustum of a cone whose tip diameter was 0.23 in. This tip bore on the cylindrical surface of the pellet which in turn was supported on the opposite side by a plate 0.46 in. wide. The

**TABLE 1. Summary of Results**

| Sample No. | Diameter (inches) —10 specimens— min. | max. | ave. | Bending Test-20 specimens: Span (inches) | Load (lb.) min. | max. | ave. | Mod. of rupture (psi) | Stokes Hardness: Load (kg) min. | max. | ave. | Tensile stress (psi) | Tumbler test % pass No. 8 | Scratch hardness | Indentation (.0001 inch) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | .215–.220 | | .218 | 3/16 | 3.74– | 6.90 | 5.20 | 240 | 4.8– | 9.8 | 8.50 | 108 | | 4H | 33 |
| 2 | .187–.199 | | .193 | 3/16 | 6.26– | 9.80 | 8.12 | 536 | 4.6– | 11.0 | 6.50 | 204 | | 8H | 23 |
| 3 | 3/16 nominal | | | 3/16 | 3.32– | 10.26 | 5.50 | 398* | | | | | | | |
| 4 | .210–.225 | | .218 | 3/16 | 0.58– | 6.52 | 1.92 | 88 | 3.5– | 8.5 | 4.35 | 55 | 41 | B–F | 16 |
| 5 | .224–.231 | | .227 | 3/16 | 1.90– | 2.84 | 2.50 | 102 | 1.4– | 3.5 | 2.72 | 123 | | B–F | |
| 6 | .262–.290 | | .273 | ¼ | 11.20– | 14.08 | 11.46 | 359 | 8.3– | 10.5 | 9.19 | 206 | 3 | 6–8H | 71 |
| 7 | .275–.291 | | .287 | ¼ | 1.78– | 5.50 | 4.38 | 108 | 3.1– | 6.1 | 4.36 | 93 | 10½ | 2H | 54 |
| 8 | .166–.177 | | .170 | 5/32 | 3.16– | 8.04 | 4.90 | 397 | 5.2– | 12.5 | 7.70 | 274 | 3 | 8H | 49 |
| 9 | .164–.174 | | .169 | 5/32 | 2.08– | 4.08 | 3.10 | 251 | 3.2– | 8.5 | 4.67 | 168 | 13 | 2–4H | |
| 10 | .213–.225 | | .220 | 3/16 | 4.60– | 10.20 | 7.38 | 330 | 8.9– | 12.9 | 11.29 | 312 | 6 | 8H | 58 |
| 11 | .197–.233 | | .225 | 3/16 | 0.90– | 4.30 | 2.80 | 118 | 3.0– | 6.2 | 4.48 | 122 | 15 | 2H | 87 |
| 12 | .218–.236 | | .226 | 3/16 | 2.20– | 5.82 | 4.13 | 171 | 4.0– | 8.6 | 5.70 | 153 | 7½ | 4H | |
| 13 | ⅜" diameter soft molasses pellets | | | | | | | | | | | | | | |
| 14 | .289–.300 | | .295 | ½ | 6.96– | 13.10 | 10.28 | 255 | 5.0– | 10.1 | 8.64 | 178 | 3½ | 8H | |
| 15 | .263–.278 | | .267 | ¼ | 2.90– | 10.24 | 6.40 | 212 | 6.1– | 13.3 | 7.62 | 172 | 6 | 6–8H | |
| 16 | .195–.205 | | .199 | 3/16 | 1.36– | 4.48 | 3.12 | 189 | 4.0– | 6.0 | 4.75 | 147 | 14 | 4H | |
| 17 | .303–.318 | | .309 | ¼ | 5.46– | 11.80 | 7.58 | 164 | 4.2– | 9.6 | 6.29 | 125 | 7 | 6H | |
| 18 | .271–.286 | | .277 | ¼ | 8.20– | 15.88 | 12.60 | 377 | 7.7– | 11.9 | 9.47 | 209 | 1½ | 8H | |
| 19 | .170–.188 | | .183 | 3/16 | 1.52– | 2.64 | 1.94 | 117 | 2.3– | 3.6 | 2.69 | 90 | 23 | 4H | |
| 20 | .158–.206 | | .185 | 3/16 | 3.00– | 7.52 | 5.36 | 399 | 7.7– | 11.4 | 8.88 | 292 | 2½ | 8H | |
| 21 | .275–.290 | | .280 | ¼ | 3.70– | 9.66 | 6.54 | 190 | 3.0– | 7.1 | 5.07 | 111 | 5½ | 4H | |
| 22 | .280–.297 | | .286 | ½ | 5.12– | 9.66 | 7.04 | 193 | 6.4– | 11.1 | 8.82 | 187 | 3½ | 6H | |
| 23 | .284–.297 | | .289 | ½ | 3.50– | 5.50 | 4.66 | 124 | 5.6– | 8.6 | 7.13 | 150 | 12 | 6H | |
| 24 | .273–.300 | | .290 | ½ | 2.60– | 8.46 | 5.50 | 144 | 5.8– | 9.3 | 7.55 | 160 | 8 | 6H | |
| 25 | .269–.292 | | .280 | ½ | 4.18– | 8.42 | 6.80 | 197 | 7.7– | 9.2 | 8.43 | 183 | 5 | 6H | |
| 26 | .277–.300 | | .288 | ½ | 1.40– | 6.82 | 2.88 | 74 | 2.6– | 6.6 | 4.86 | 103 | 29 | 2H | |
| 27 | .254–.272 | | .268 | ½ | 2.60– | 8.04 | 5.32 | 176 | 6.4– | 9.5 | 7.82 | 177 | 4½ | 4–6H | |
| 28 | wafers | | | | | | | | | | | | | 8H | |
| 29 | .282–.293 | | .286 | ¼ | 3.64– | 8.30 | 6.00 | 164 | 6.9– | 10.4 | 9.33 | 198 | 3 | 4H | |

*Based on nominal diameter.

pressure was regulated by means of a screw turned by hand to compress the spring. The device, in effect, applied a line load on a generator of the cylindrical surface of the pellet. This force was reacted by another line load diametrically opposite. One load was distributed over a length of 0.23 in. and the other over a length of 0.46 in.

The plane stress solution for such a loading on an elastic cylinder yields a maximum tensile stress, on the diametral plane containing the loads, given by the expression

$$S = \frac{2P}{\pi d t},$$

where P is the magnitude of the load, d is the diameter of the pellet, and t is the length of the loaded cylinder. See Figure 2b for interpretation of the nomenclature used. In this computation, t was taken to be 0.23 in. The results are tabulated in Table 1 under the heading, "Stokes Hardness, Stress."

**Scratch tests:** An attempt was made to determine abrasion hardness by means of a scratch test, utilizing a series of drawing pencils of grades B, F, 2H, 4H, 6H and 8H. This series includes every second grade from rather soft to very hard. Values are recorded in Table 1 for one set of readings. Attempts to duplicate readings were not entirely successful, especially in the middle range. In conducting this test, the pencils were first sharpened in a good office pencil sharpener. Beginning with grade B, the softest one used, the pencils were tried in turn until one made a noticeable scratch on the surface of the pellet. This grade was recorded. A better technique needs to be developed for this test to be successful.

**Tumbler tests:** In an effort to simulate handling conditions, several shaking and tumbling tests were tried. No shaker test that was tried was sufficiently destructive to be worthwhile. Two tumblers were constructed from one-quart paint cans and a section of bronze welding rod. One was constructed as shown in Figure 3 and one in similar fashion through the cylinder. Neither was sufficiently destructive when operated for a short period of time until some steel balls were introduced along with the charge of pellets. The design shown in Figure 3 was used in all tests reported as it was more damaging to the pellets than the alternate design.

A 100 gm. charge of pellets was introduced along with 20 steel balls of ⅛ in. diameter. The lid was secured and the assembly rotated by hand in the cradle for five minutes at a speed of between 95 and 100 revolutions per minute. The contents were then emptied onto a No. 8 sieve, the balls removed, and the pelleted material given 20 shakes by hand to separate the fines from the overs. Both fractions were weighed and the percentage of fines recorded in Table 1. This test was duplicated on several samples with a difference of less than one per cent in fines produced.

**ANALYSIS OF RESULTS**—Linear correlation coefficients were computed for the following combinations:

| | |
|---|---|
| a. Stress from Stokes Test vs. Modulus of Rupture | 0.82 |
| b. Tumbler Test vs. Modulus of Rupture | 0.62 |
| c. Stokes Load vs. Modulus of Rupture | 0.70 |
| d. Scratch Test vs. Modulus of Rupture | 0.66 |
| e. Stress from Stokes Test vs. Tumbler Test | 0.57 |
| f. Scratch Test vs. Tumbler Test | 0.75 |

The only one of these correlations which could be considered significant is the first in which computed tensile stresses were compared. This relationship is shown in Figure 4. The relatively high correlation indicates that the tensile stresses were a major factor in producing failure in these two quite different tests, one transverse compression, the other bending. To a considerable degree, the same quantity is being measured in both tests.

If it may be assumed that the tumbler test simulated handling conditions, none of the other tests seemed to measure the significant quantity in determining breakage through handling. The scatter diagram of this relationship is shown in Figure 5.

**DISCUSSION OF TESTING PROCEDURES**—From the studies completed, it is obvious that any results based on loads or stresses depend in large measure on the rate of loading. While the rates were reasonably well controlled in the tests herein reported, no series of experiments was conducted to measure variation of physical properties with rate of loading.

In order to study the rheological properties more accurately and completely and to evaluate other physical properties of feed pellets, it would be necessary to design and construct a more versatile piece of equipment capable of measuring deformation as well as load and in which the deformation can be controlled. The deformation rate should be made variable over a wide range and the load sensing device should be accurate to at least one-tenth pound or less if possible. For relatively high speed measurements a recording device for both deformation and load should be incorporated. Standard electrical strain measuring and recording equipment can be adapted for the measurements if a satisfactory loading mechanism can be developed. The equipment envisaged would definitely be for the laboratory, but with it more fundamental studies of the physical and rheological properties of pellets and perhaps whole grains could be studied, including the effects of moisture, age and temperature on these properties. From such results perhaps simpler instruments could then be devised for specific uses.

The tumbler test seems practicable for production control, but it requires correlation with mill experience to establish its validity as a measure of the breakage of pellets during handling operations. Further studies of variations in shape of cylinder, speed of rotation, running time and magnitude of charge would undoubtedly bring about a more efficient design. If it should be determined that such a test is likely to be of value, a new device should be designed and constructed. It might be driven by a small constant speed motor through a speed reducer and should be equipped with a revolution counter and automatic shut-off. Such a device could be constructed with a gang of tumblers, so that a number of samples could be tested simultaneously. Before this device is built, it might be worthwhile to study the action of the balls and tumbler by constructing one of transparent plastic tubing.

The appeal of the scratch test is its simplicity, and more thought might be given it. Perhaps instead of holding the pencil in the hand a device might be required to hold the pencil at a given angle under a specified load.

As none of the present techniques give an adequate measure of pellet hardness, additional work along the lines indicated will be required before a satisfactory standard can be established.

**ACKNOWLEDGEMENT**

The authors gratefully acknowledge the financial assistance of Sprout, Waldron & Co., Muncy, Pa., which made possible this investigation.

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3. Keyser, C. A.—Materials of Engineering, Prentice-Hall, Inc., New York (1956).

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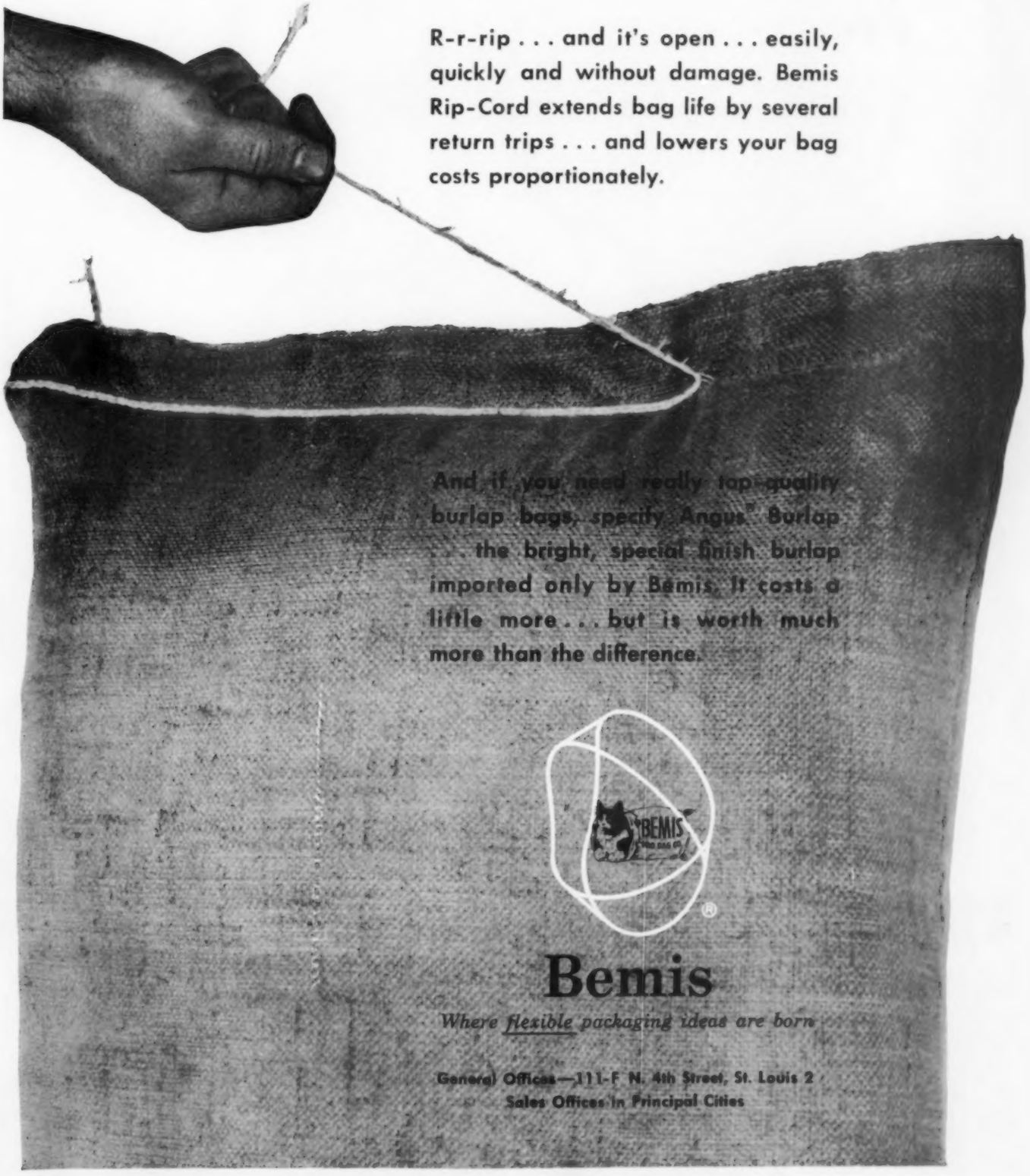

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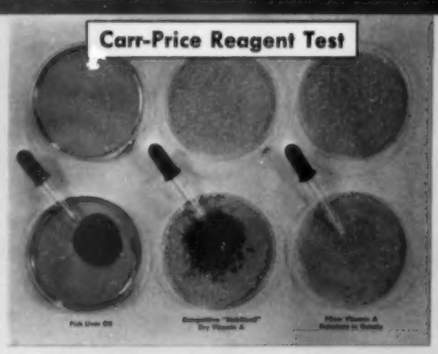


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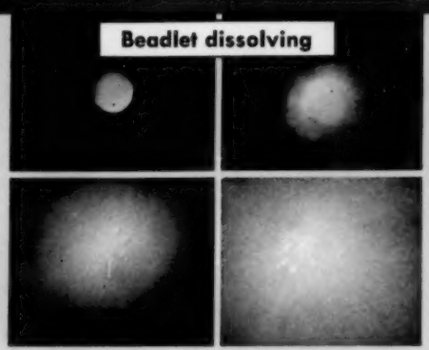


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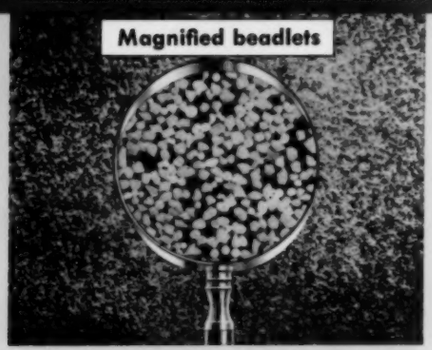


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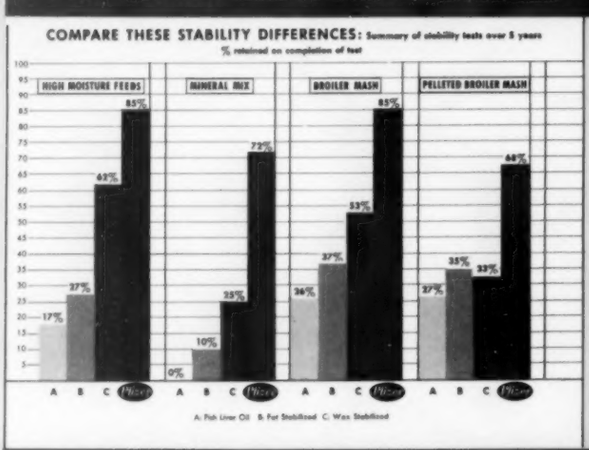


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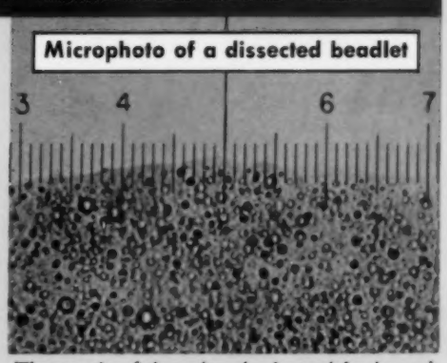


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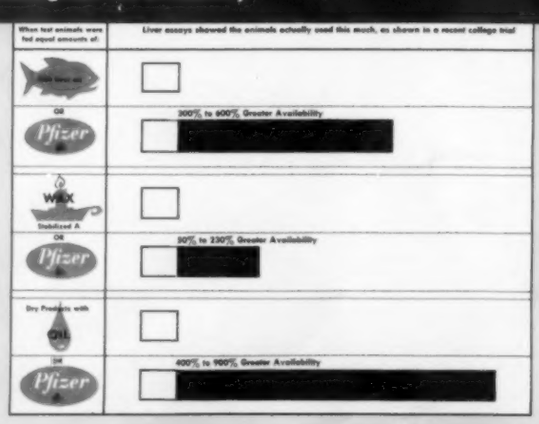


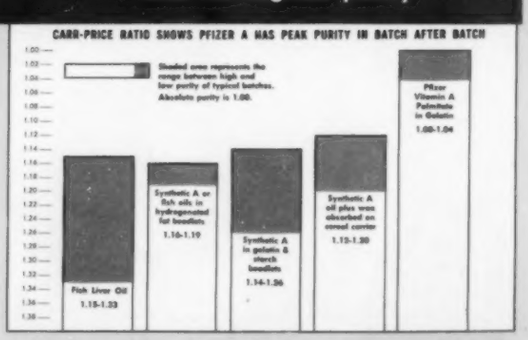
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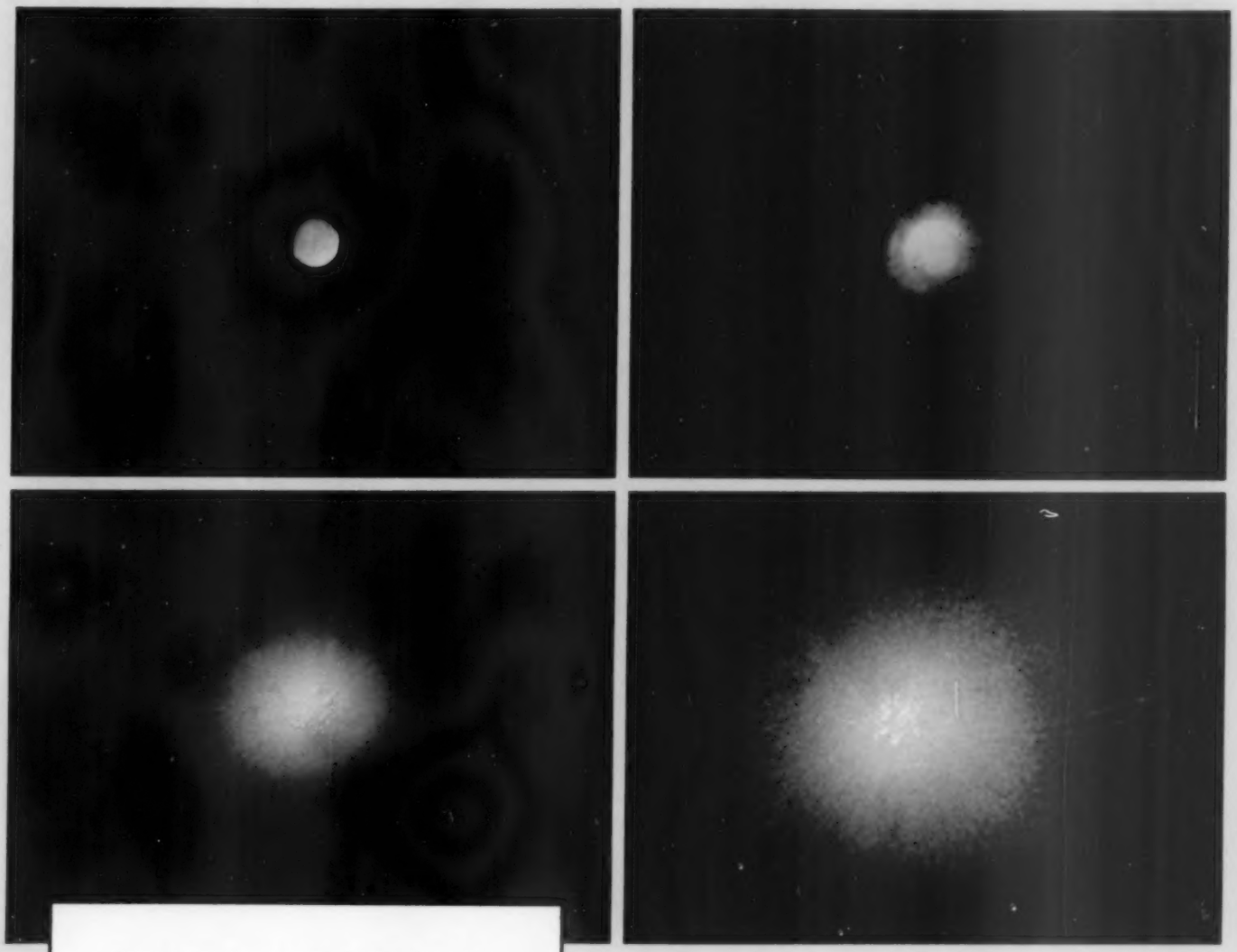

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## *Table Is Prepared To Show Eggs On Pound Basis*

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Company officials said that eggs are "your best protein food buy—check their low cost per pound. If eggs were sold by the pound, shopping housewives would more readily appreciate their low cost compared to other foods—and the consumption of eggs would be increasing instead of declining."

The accompanying table converts price per dozen to cost per pound for eggs of different sizes. It also shows when smalls and mediums are a better value than large eggs. For example, when large eggs sell for 50¢ doz., mediums are an equal value —33⅓¢ lb.—at 46¢ doz., and a better buy at lower than 46¢ doz.

**Cost of Eggs on Per Pound Basis**

| Cost per doz. | Cost per pound — Extra large 27 oz. | Large 24 oz. & up | Medium 21-24 oz. (22) | Small under 21 oz. (20) |
|---|---|---|---|---|
| dollars | cents, lb. | cents | cents | cents, lb. |
| .80 | 47.5 | 53.7 | 58.2 | 60 |
| .78 | 46.2 | 52 | 56.7 | 58½ |
| .76 | 45 | 50.7 | 55.3 | 57 |
| .74 | 43.9 | 49.3 | 53.8 | 55½ |
| .72 | 42.6 | 48 | 52.4 | 54 |
| .70 | 41.5 | 46.7 | 50.9 | 52½ |
| .68 | 40.3 | 45.3 | 49.5 | 51 |
| .66 | 39.1 | 44 | 48 | 49½ |
| .64 | 37.9 | 42.7 | 46.5 | 48 |
| .62 | 36.7 | 41.3 | 45 | 46½ |
| .60 | 35.5 | 40 | 43.6 | 45 |
| .58 | 34.4 | 38.7 | 42.2 | 43½ |
| .56 | 33.2 | 37.3 | 40.7 | 42 |
| .54 | 32 | 36 | 39.3 | 40½ |
| .52 | 30.8 | 34.7 | 37.8 | 39 |
| .50 | 29.6 | 33.3 | 36.4 | 37½ |
| .48 | 28.4 | 32 | 34.9 | 36 |
| .46 | 27.3 | 30.7 | 33.5 | 34½ |
| .44 | 26.1 | 29.3 | 32 | 33 |
| .42 | 24.9 | 28 | 30.5 | 31½ |
| .40 | 23.7 | 26.7 | 29.1 | 30 |
| .38 | 22.5 | 25.3 | 27.6 | 28½ |
| .36 | 21.3 | 24 | 26.2 | 27 |
| .34 | 20.1 | 22.7 | 24.7 | 25½ |
| .32 | 19 | 21.3 | 23.7 | 24 |
| .30 | 17.8 | 20 | 21.8 | 22½ |
| .28 | 16.6 | 18.7 | 20.4 | 21 |
| .26 | 15.4 | 17.3 | 18.9 | 19½ |
| .24 | 14.2 | 16 | 17.5 | 18 |
| .22 | 13 | 14.7 | 16.0 | 16½ |
| .20 | 11.8 | 13.3 | 14.5 | 15 |

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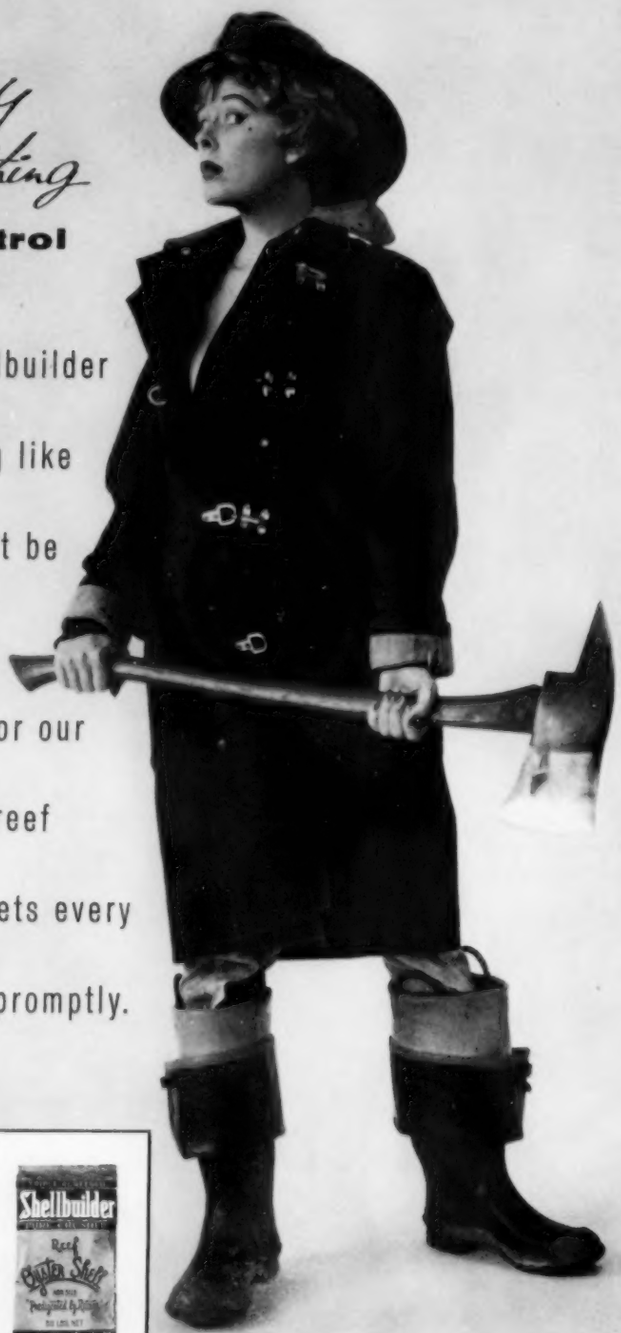

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## Infectious Sinusitis Control Progresses

PUYALLUP, WASH.—"Encouraging progress" toward control of infectious sinusitus turkey disease has been reported by Dr. A. C. Jerstad, Washington State University veterinarian in charge of a project to curb the disease.

The present project was started in 1954 with grants-in-aid from the National Turkey Federation, the Washington State Turkey Federations and the U.S. Department of Agriculture. Since then some 30,000 birds have been used in the work, and, as stated in a National Turkey Federation report, "there are still some unanswered questions—but the pattern of final victory is beginning to emerge."

In the report Dr. Jerstad was quoted as saying the first major accomplishment was proving that the disease is egg transmitted. The remaining problem is to determine the precise pattern of egg transmission in all types of flocks and to use this knowledge to provide growers with disease-free stock.

Acting on the basis of present knowledge, Washington State University has launched a voluntary control program under which flocks of cooperating growers are tested, according to a National Turkey Federation report. Although no formal certification is provided at the present stage of the program, eggs from flocks found to be infected while in egg production are not used for hatching.

If the preferred goal of clean flocks cannot be obtained under field conditions, alternate methods to control the disease now under consideration and test will be formulated, it was explained in the report.

## Corn Refiners Report Record Grind for 1959

NEW YORK—The corn refining or wet-milling industry ground 153,010,863 bu. corn in 1959, Corn Industries Research Foundation, Inc., has announced. This total, an all-time high mark for the industry, substantially exceeds the 1958 grind of 144,077,910 bu., the previous high.

The 11 member companies of the corn wet-milling industry process corn to produce starch, syrup, sugar, oil, feed and miscellaneous by-products. Some 60 industries use these products of corn, the foundation said. Among the large consumers are confectioners, bakers and other food processors and, in nonfood fields, the paper and textile industries.

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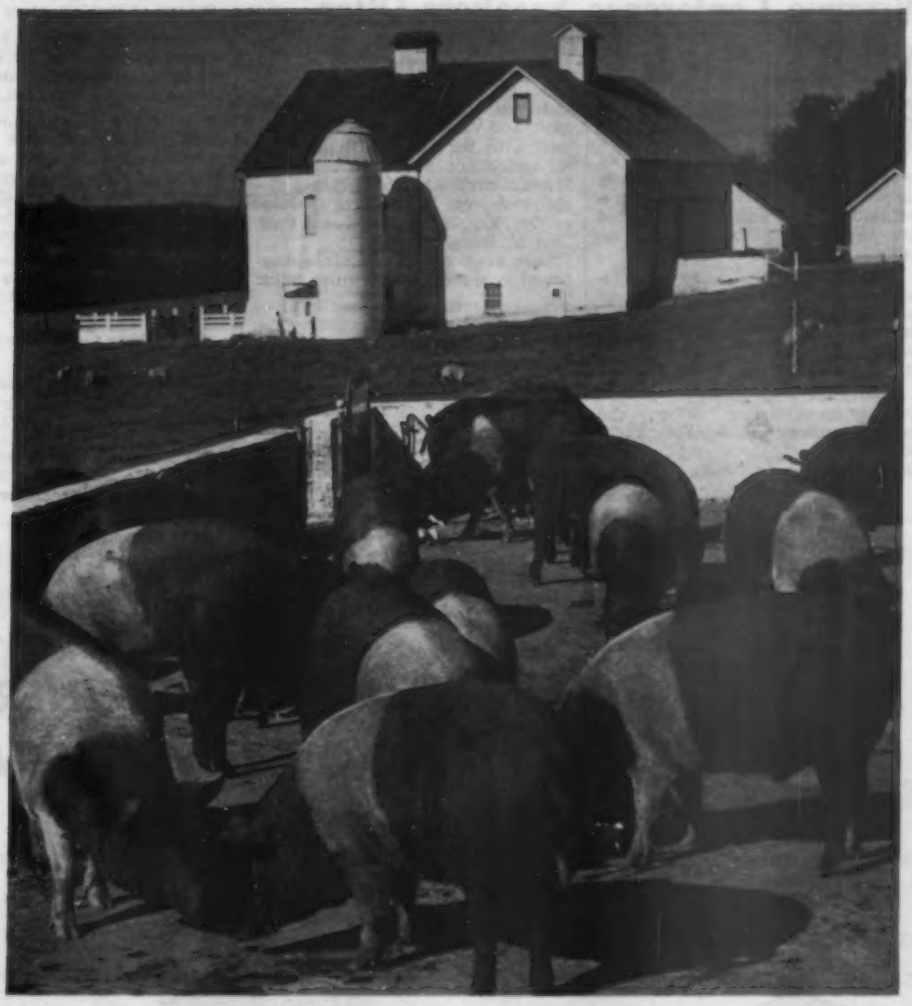

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# Virginia Conference Speakers Offer Views on 'Feeds for Tomorrow'

By ROGER BERGLUND
Feedstuffs Managing Editor

ROANOKE, VA. — While great progress has been made in feeding livestock and poultry, there is still a lot to be learned and to be translated into feed formulation and feeding results.

Some of the likely new developments, along with current trends and practices, were brought out in talks last week at the Virginia Feed Convention and Nutrition Conference at the Hotel Roanoke.

Nearly 200 feed men were present to hear speakers from industry and colleges outline their views on "Feeds for Tomorrow," the conference theme.

The two-day conference was sponsored by the Virginia State Feed Assn. and Virginia Polytechnic Institute, with the Virginia Department of Agriculture and American Feed Manufacturers Assn. cooperating. Co-chairmen were R. L. Barnett, Cooperative Mills, Inc., Roanoke, and Prof. Paul M. Reaves of VPI.

Here are some of the points mentioned by speakers in nutrition talks:

- No single feeding system has yet been devised that is satisfactory for all strains of pullets under all conditions.
- There have been great improvements in poultry feeds during the past 20 years, but the next 20 years promise to give five times as many changes.
- One of the principal developments in turkey feeding is evidence suggesting use of supplementary zinc.
- There is a tendency to widen the calorie-protein ratio for broilers, and in such rations supplementary methionine may be beneficial.
- Among ways to improve swine carcass quality, in addition to breeding, are decreased weight at slaughter, supplying optimum environment, altering rate of gain and pattern of gain, adequate protein and more attention to quality of protein.
- Both a life cycle disease control program and a life cycle feeding program are essential to efficient swine production.
- A medium feeding level is best for dairy heifers.
- For dairy calves, intake problems have arisen frequently enough to justify some pelleting and to make texture of the starter an important consideration. Use of pelleted or partially pelleted concentrates for milk cows likely will increase.
- The nutritional factor which most often limits milk production is inadequate energy intake.
- The future of complete pelleted rations for ruminants looks promising, but much more information is still needed.
- Consideration may have to be given to dietary protein quality in formulating rations for ruminants.

Summaries of nutrition discussions follow (other talks were summarized in Feedstuffs, March 5):

**FEEDING AND MANAGEMENT PRACTICES FOR GROWING PULLETS AND THEIR EFFECTS ON PERFORMANCE IN THE LAYING HOUSE**—No single feeding system has yet been devised that is satisfactory for all strains of pullets under all conditions, said Dr. E. P. Singsen, head of the University of Connecticut poultry department. Excellent pullets can be reared with a wide variety of feeds and feeding programs. Results obtained with any specific system will be modified by confinement vs. range rearing, season and temperature.

While discussing restricted feeding, Dr. Singsen called attention to an English report on the retarding effect of decreasing amounts of light during the growth period. These results indicate that decreasing light can be just as effective in retarding pullet development as the various restricted feeding practices used in the U.S.

Dr. Singsen also commented on animal experiments showing a tendency toward increased longevity and prolonged productive life when feed intake is restricted during the growing period. However, he said, poultrymen should note that the desirable effects have usually been noted during the latter half of reproductive life. The fact that chickens are usually kept for less than half of their potential reproductive life may be one reason why less consistent and generally less beneficial results have been reported with poultry. Other factors also must be considered.

It was pointed out that feed restrictions may be accomplished by either restricting amount of medium or high energy feed or adding large amounts of fiber (about 15%). Dr. Singsen, in summarizing recent experiments, went on to comment on such things as delay in sexual maturity and body weight of pullets.

Mortality during the growing period usually shows little change during moderate feed restriction. Feed allowances should be increased by 2 to 4 lb. per 100 birds per day during cold weather as compared with similar birds reared during spring and summer.

Using a full-feeding of a medium energy ration as the comparison base,


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Dr. Singsen said, feed cost of rearing a pullet to sexual maturity is usually increased by full feeding a high-fiber, bulky ration and decreased by restricted feeding of a specific amount of a medium or high energy ration.

Most experiments indicate that pullets reared on some type of restriction live slightly better in the laying house than those on full feed.

Differences in egg production are relatively small and vary. Egg-type birds show no consistent advantage for any specific feeding system, said Dr. Singsen. An advantage is indicated for heavy meat-type birds, however. This is particularly true when birds are started in the fall and early winter and are reaching maturity during the period of increasing light stimulus and tend to mature earlier than usual.

Egg weight is controlled primarily by chronological age of the bird, it was pointed out. If sexual maturity has been delayed, initial egg size will be larger because the birds are older. If compared at any given age, however, there will be essentially no difference in egg size due to rearing methods.

Dr. Singsen quoted the remark by Dr. J. H. Quisenberry of Texas that for egg-type birds he would "probably choose the high fiber program for colony cage rearing, limited feeding for spring and summer range rearing with good range cover, and low fiber, full feeding for confinement floor pens and fall and winter brooding on the range."

**POULTRY FEEDS FOR TOMORROW**—Dr. J. M. Snyder, director of poultry research for Beacon Milling Co., Cayuga, N.Y., provided a broad look at likely changes in kinds of feeds and formulation. Here are some of his predictions:

**Kinds of feeds and feeding programs for poultry:** (1) The trend toward complete feeds will continue. (2) Male and female feeds loom on the horizon. Males, since they are fast growers, need more nutrient punch. (3) There will be somewhat more feeds for different ages of birds. Where a feed change has to be made anyway—such as placing broilers on "plain" feed five days before marketing—nutrient makeup should change to meet special needs during finishing, low protein and high calorie content. (4) Nutrient makeup will change depending upon season—such as more calories in cold weather and higher fortification when birds eat less during hot weather—and feeds may vary among regions. (5) There will be different formulations for different breeds and/or strains. (6) Specific feeds for specific needs—such as high-level feeds at times of disease stress, molting feed for layers, prebreeding feed for turkeys, nutrient-dense feed if restricted feeding is carried out. Also, crumbles and pellets will continue to take over.

**Formulation:** (1) Increased use of electronic computers, making "standard" formulas a thing of the past. (2) More knowledge of precise nutrient requirements. As examples, Dr. Snyder mentioned lower phosphorus for layers; lower calcium for broilers, .85% instead of 1-1.2%; possible substitution of selenium for vitamin E in some instances; with better vitamin products, lower vitamin levels; stretched protein—just enough protein to supply the second limiting amino acid and then use of synthetic methionine. (3) Better analysis of feed ingredients and perhaps formulation on basis of specific ingredients used at a given time. (4) Less emphasis on unidentified growth factors and use of more simplified rations, but question whether would want to do this always, "many of these ingredients are good buys."

**Feed ingredient changes:** (1) Toasted unextracted soybean meal can be used if the price is right; soybean oil can be used advantageously if the cost is less than 26% in excess of animal fat. (2) Growth hormones have potential and "egg producing" hormones might be used; progesterone may bring higher egg production and prevent broodiness. (3) Enzymes, water treatment or heat treatment may be used more to improve ingredients. (4) Tranquilizers have been reported to help during times of stress; how about tranquilizers for "nervous" pullets at housing, or broilers at marketing time? (5) Must relook at appetite stimulators; perhaps it will not be just a matter of tasteful flavoring but use of chemical implants to stimulate appetite more. (6) FDA willing, will see more and better medicinals, such as those working against fungal organisms, better coccidiostats, antibiotic potentiators, improved furan compounds.

**RECENT RESEARCH IN TURKEY NUTRITION AND MANAGEMENT**—In his talk on this subject, Dr. Singsen gave particular attention to the effect of zinc on growth, feathering and bone formation and the re-

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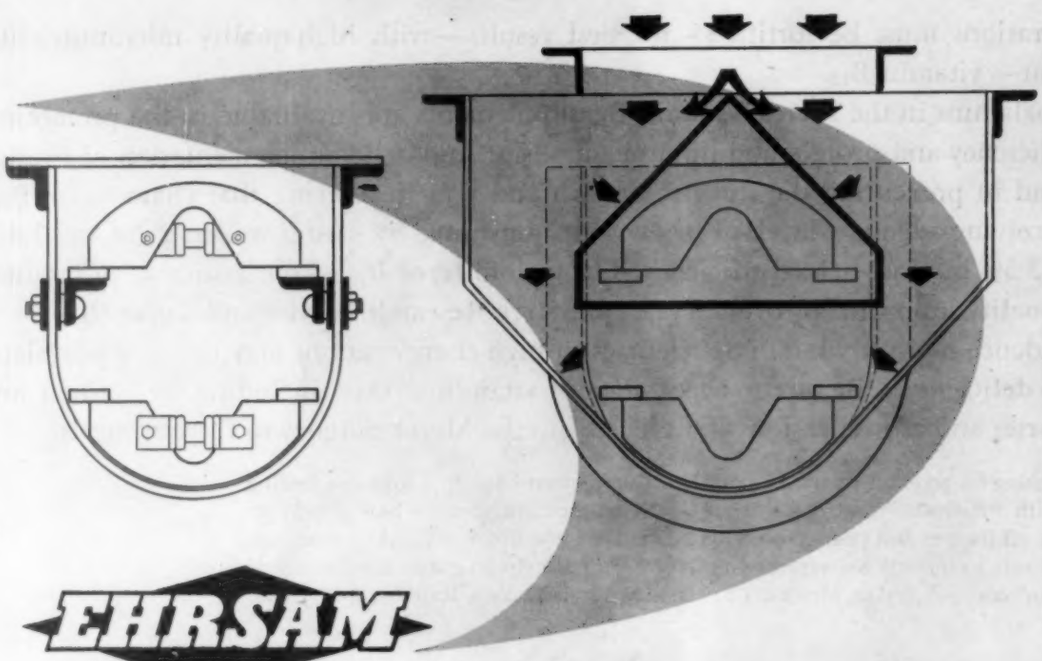

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lationship of zinc to other nutrients. The value of supplementary zinc in practical turkey rations is not completely clear, Dr. Singsen said.

Reports from several sources indicate that the poult's zinc requirement is probably between 50 and 70 parts per million in the presence of typical levels of calcium and phosphorus. It is apparent that zinc content of the turkey starting ration is very close to the poult's requirement, and through normal ingredient variation, a partial deficiency may occasionally occur in the field. Customary use of some 2% calcium in the starting rations undoubtedly increases the need for supplementary zinc. On the other hand, galvanized equipment will provide some zinc.

Dr. Singsen said that if he were growing turkeys, he would add 15 or 20 p.p.m. of zinc.

In commenting on protein and energy studies, he cited Iowa work indicating that the major factor in feed efficiency was energy. The response to protein was small beyond 28%.

Dr. Singsen mentioned the importance of work on consumer acceptance and cited a USDA report. A study with turkeys indicated an increase in off-flavors of birds finished on a diet containing animal proteins and .15% fish oil. Birds finished on a diet containing only vegetable proteins and 8% added lard scored highest in flavor. Use of 4 or 8% lard consistently reduced off-flavors.

Three recent reports agreed that range rearing has little effect on total amount of feed consumed. Range rearing does increase labor, but the scientists seemed to feel it was preferable where space was available.

**VPI POULTRY RESEARCH**—Dr. E. L. Wisman of VPI told of research on amino acid supplementation of chick rations. In broilers, he noted, there is a tendency to widen the calorie-protein ratio by increasing energy content using fat. Such a procedure with a corn-soy ration results in less corn and more soy, lowering the total sulfur-containing amino acid content of the ration. In such rations, supplementary methionine or its analog is beneficial.

This relationship, Dr. Wisman reported, has been demonstrated by a battery trial using broiler chicks. Corn-soybean rations previously employed, which contained 21% crude protein and 900 Calories per pound of productive energy, were not improved by adding methionine. In this trial, a basal ration containing 22% protein and 1026 Calories was used. Data showed that supplementary methionine resulted in improved growth rate and feed efficiency.

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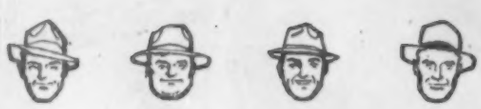

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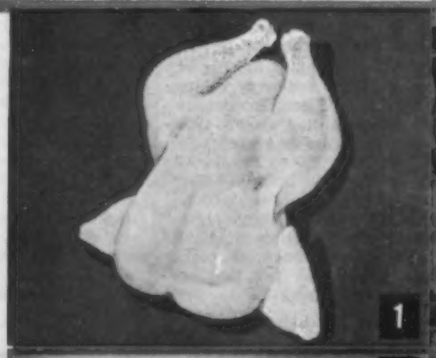

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amino acids other than methionine may become limiting when the ratios of these ingredients are altered. Use of exceptionally wide C/P ratios, however, could possibly warrant supplementation with other amino acids, Dr. Wisman said.

Dr. H. S. Siegel of VPI described a study of the effect of dietary salt level and mode of administration on body weight and endocrine gland weights of broilers. Males were fed a basal diet containing 0, 0.2, 0.4, 0.8 or 1.6% added salt or .85% salt in the drinking water from one day until six weeks of age. In those groups receiving salt in the water, a free choice with fresh water was permitted on alternate days.

The birds became progressively more sensitive to lack of salt as they grew older. Body weight and feed conversion data indicated that salt in the feed was not necessary if it was provided in the drinking water. There were significant increases in adrenal and pituitary gland weights in those birds fed diets lacking added salt. It also was observed that these groups became cannibalistic as they approached six weeks.

**FEED, FAT AND SWINE**—Dr. C. C. Brooks of VPI said that the most practical steps to take to alter carcass quality of swine appear to be: (1) Improve breeding stock and its distribution; (2) decrease weight at slaughter; (3) try to supply optimum environment; (4) altering rate of gain and pattern of gain with energy might be used successfully under certain conditions even though it does not now appear practical; (5) feeding high protein level and high quality protein to both growing and breeding animals.

A concerted effort should be made to improve muscle mass and decrease fat of breeding swine, Dr. Brooks said, but an even greater effort should be made to get a wider distribution of the hogs we now have that do produce desirable pork.

Reducing the weight of the pig at slaughter is a very real way of increasing the ratio of lean, Dr. Brooks asserted. Research has shown that the lean of the carcass decreased 10% as hogs grew from 150 to 200 lb. As efficiency increases in both breeding herd and growing pigs, the cumulative cost per unit of live hog reaches its lowest point in lighter animals. Under present recommended practices, cumulative cost per unit is lowest between 100 and 150 lb. live weight. The slowness with which movement to a lighter slaughter weight is occurring appears to be due to a fear of changing traditional slaughter and merchandising practices.

**COLUMBUS FEED CLUB OFFICERS**—Officers recently installed by the Columbus (Ohio) Feed Club for 1960 include (left to right): Sitting—John E. Wiant, Ohio Grain Co., director; H. Ralph Kagay, Mill Mutuals, co-chairman; R. W. Liston, Eshelman Grain, Inc., chairman; Cleon C. Welch, secretary-treasurer; John W. Baringer, Ohio Department of Agriculture, director; standing—John L. Biersteker, Bemis Bro. Bag Co., director; Theodore D. Metz, Continental Grain Co., director; Ralph L. Matlock, Madison Farm Bureau Co-op, Inc., director, and Paul Bradfield, General Bag Corp., sergeant-at-arms.

Environmental factors also are important. For example, hogs raised under low temperatures have fatter carcasses. Studies have indicated that the hog breaks down protein to keep warm.

Feeding or feeds may be altered in many ways to affect carcass composition, Dr. Brooks pointed out. For example, some researchers suggested some time ago, in studying rate of gain and muscle formation, that rapid growth up to 16 weeks be accomplished by full feeding, followed by slower growth to market weight through restricted feeding. Dr. Brooks went on to discuss research on restricted feeding through use of high fiber rations. He cited some Virginia work and suggested that perhaps we need to look more closely at just when restricted feeding should be started or reexamine the whole effect of growth pattern.

Dr. Brooks also noted the importance of adequate protein in attaining a higher ratio of lean. Protein quality, too, affects the amount of lean, and this, he said, may prove to be the greatest nutritional discovery of the last decade. He outlined some Virginia work showing that lysine level not only affects muscle size but the ratio of lysine to other amino acids will affect it. Amounts needed for maximum growth may vary from amounts needed for maximum muscle development.

Sow nutrition can be important, too. Danish work has indicated that the protein level fed the sow during lactation affected the lean-fat ratio of the pig when slaughtered even though rate of gain of the pigs to weaning was not affected.

**PIGS AS I SEE THEM**—Dr. A. C. Rogers, a practicing veterinarian and president of Smithfield (Va.) Feed Mills, Inc., stressed the importance of good swine programs, and he recommended both a life cycle disease program and a life cycle feed program to reduce losses and put meatier hogs on the market quicker.

His recommended disease control program is: (1) Registering herd in the state health certification program by testing for bangs, leptospirosis and T.B. (2) Complete examination of the herd for disease such as rhinitis, erysipelas and influenza as well as internal and external parasites. (3) An adequate vaccination program (6 weeks before farrowing, vaccinate sows against erysipelas; after farrowing, examine sows' udders for mastitis—give baby pigs injection of mixed infection serum and iron; on farms where erysipelas is a problem, vaccinate pigs against it when youngest are 4 weeks of age; wean pigs at 6 weeks and vaccinate against chol-

(Turn to CONFERENCE, page 78)

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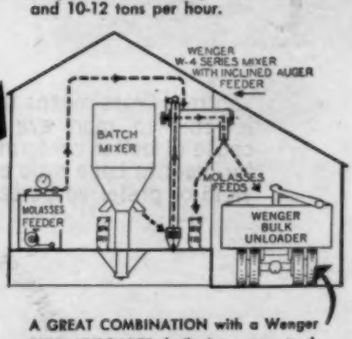


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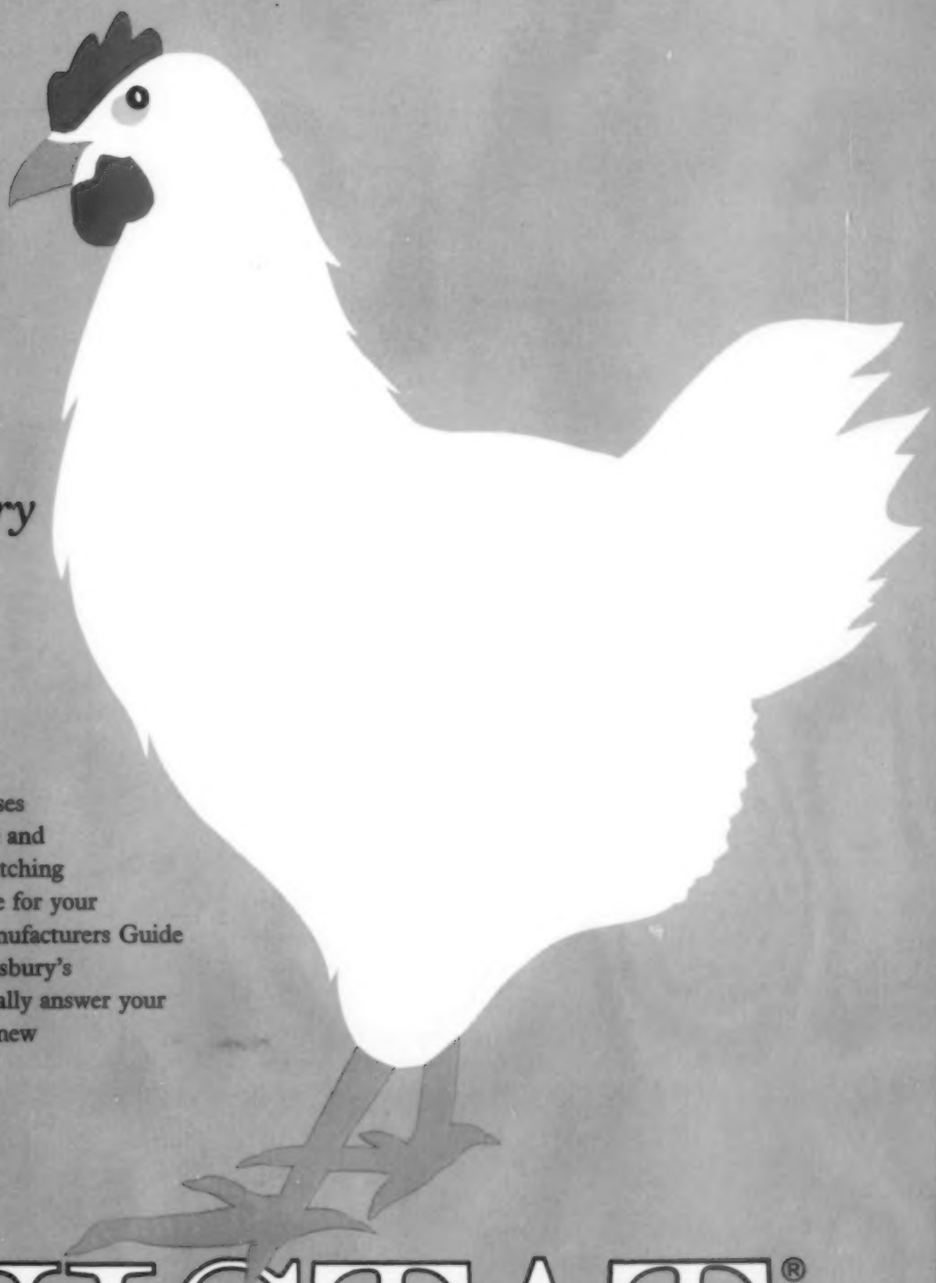

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Recent tests have shown that streptomycin added to penicillin produces even greater growth stimulation. Streptomycin is highly efficient in killing harmful gram-negative germs found in the intestines. Most of the streptomycin stays in the intestines, where it continues to kill bacteria long after most of the so-called broad-spectrum antibiotics have ceased to be effective. This bactericidal action is the basic reason why streptomycin is able to overcome so many diseases that originate in the gastro-intestinal tract.

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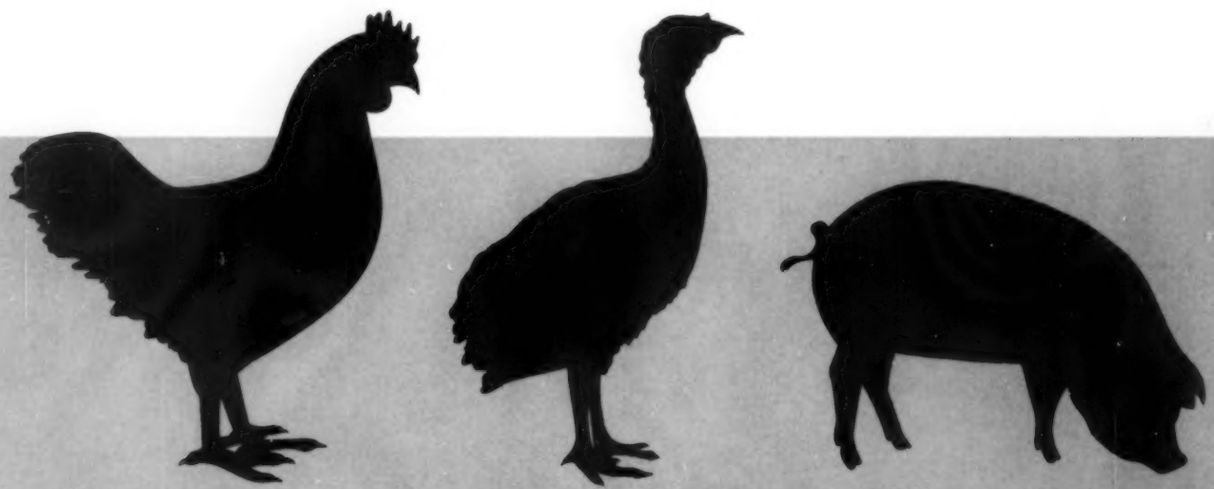

### CHICKENS

Varying amounts of Strepcillin F-25 are fed to **stimulate growth, improve feed efficiency,** help **boost egg production, and fight disease.** Feed Strepcillin F-25 for the first 10 days, then 3 to 5 days during, or immediately after, such stresses as vaccination, debeaking, housing pullets, chilling, or overheating. Or, feed it for the first 10 days, then for 3 days out of every week until marketing time. Or, use it continuously in case of disease outbreaks. (Other feeding programs based on flock needs may be adopted.)

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Feed continuously (in varying amounts, depending on flock needs) from hatching until birds are 16 to 20 weeks old to **stimulate growth, improve feed efficiency, fight disease.** Helps prevent early death loss among poults. Is effective as treatment for bluecomb and infectious sinusitis, protects against loss following periods of stress caused by vaccination, desnooding, chilling, moving, and overheating.

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To **stimulate growth, improve feed efficiency,** and **promote more uniform gains,** mix Strepcillin F-25 at rate of 1 lb. per ton of feed. To prevent "necro," use feeds containing twice this amount of Strepcillin F-25 (2 lb. per ton) continuously until pigs reach 50 to 75 lb. To control "necro," use Strepcillin F-25 at the rate of 4 lb. per ton of feed and give for 4 or 5 days (or until symptoms disappear).

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# *GOOD MANAGEMENT is the key to HIGHEST PROFITS*

There is no substitute for good management in the profitable production of livestock and poultry. Today's birds and animals have inbred qualities for high yield—per hen, per hundredweight of feed, or any way you want to look at it. But high production is an unnatural condition, one that is extremely difficult to achieve or maintain. Those who lean on medication alone soon learn that they cannot hope to realize sustained top profits. It takes the consistent use of both good management *and* medication for highest returns, year after year. Many organizations have joined hands in telling this story to growers, hoping they will not "cut corners" and thereby handicap today's superior feeds, medication, and breeding stock. The following seven rules have been suggested as a guide to good management:

1. Select high-quality, disease-free livestock and birds. The best of feeds is no substitute for good breeding. And the end result (eggs or meat) is seldom any better than the genetic characteristics of the birds or animals growers start with.
2. Care for young animals or birds properly. This includes vaccination and all other such preventive measures. The grower who markets 99 broilers or turkeys out of a hundred takes every precaution during those critical first few weeks.
3. Practice good housekeeping throughout the year or life cycle of the animals or birds involved. This includes adequate housing, watering, heating, ventilation. It also means a strict sanitation program, clean pastures, and litter.
4. Give continuous attention to birds' and animals' nutrition so as to provide optimum disease prevention and growth stimulation. The most successful growers are those who reinforce good management with a sound feed additive medication program.
5. Observe flocks and herds daily, so as to detect health problems before they reach the epidemic stage. Nowhere else is timeliness any more important than in the field of health. Growers should isolate sick birds or animals immediately.
6. When trouble breaks out, get an accurate diagnosis at once. If prompt diagnostic service is not available, contact the Dr. Salsbury dealer and ask him for help in identifying the malady.
7. Treat sick birds or animals promptly. Use a reliable recommended treatment in accordance with the diagnosis of the condition.

We, here at Dr. Salsbury's Laboratories, gladly subscribe to the above management rules. They will, if followed faithfully, repay the grower many times over through lower disease loss and higher profits. In support of this belief, the ads we write for grower publications have been carrying the following message (or words to this effect):

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*Management and medication make today's superior feeds even better*

# Antibiotic 'Pays For Itself' in Dairy Nutrition Project

EAST LANSING, MICH.—Aureomycin increased milk production by more than enough to pay for itself in a dairy nutrition research project at Michigan State University, according to Leonard D. Brown, dairy scientist. He reported the research in a recent Farmers' Week session on the East Lansing campus.

The study involved two feeding trials. One extended from April through September—the pasture season. The other included October to May—the barn feeding season.

The pasture-season trial included 18 herds; the barn feeding trial, 14. Mr. Brown said both groups were large enough to validate the results. Here's what he reported:

"1. In the pasture-season test, cows that got Aureomycin gave only .21 lb. more milk per day than animals that didn't receive the additive.

"2. In the barn-feeding-season test, Aureomycin-fed cows gave 1.81 lb. more milk per day than the control animals. That's after adjustment for production differences when the test began.

"3. Lumping the two trials together, Aureomycin-fed cows averaged .82 lb. more milk per day than the control animals.

"That's more than enough to pay for the additives," Mr. Brown stated. "The added milk would sell for about 3.3¢ a day at normal prices. Feeding Aureomycin crumbles costs about 2¢ a day. The same amount in other forms might cost only 1¢.

"4. In the pasture-season trial, Aureomycin-fed cows varied less in day-to-day production than animals that didn't get the antibiotic. The barn-feeding-season trial showed no such difference.

"Two things might help to explain this difference," Mr. Brown pointed out. "First, cattle tested in the pasture season were on pasture or were receiving green chop. Second, Michigan's dairy-herd disease level reaches its low point in the summer.

"5. Bloat in some herds appeared to be connected with the feeding of Aureomycin. The condition affected about 8% of all animals that got the antibiotic.

"We feel bloat shouldn't limit Aureomycin feeding," Mr. Brown commented. "Farmers can always stop feeding it to individual cows that have trouble."

Most — though not all — cases of bloat appeared in the first three or four weeks after going on feed. In almost every instance, the condition was corrected by cutting the dosage in half for one week and then bringing cows back on full feed.

# Molasses Exports Up, Imports Down in Year

NEW ORLEANS—The U.S. and its territories exported more feed and industrial molasses in 1959 than they did in 1958, and imported less last year than the year before but, still, imports were nearly 10 times greater than exports.

The U.S. Department of Agriculture's marketing service here reports that the gain in exports was 73%—from 17 million gallons to 29.4 million. The reduction in imports was about 16%—from 334.3 million to 279.5 million gallons.

Exports of feed and industrial molasses amounted to 5.1 million gallons during December of last year, an increase of 240% over November's exports of 1.5 million gallons and about 65% above the 3.1 million gallons exported in December, 1958.

Molasses imports during December of last year were greater than in the month before but considerably less than during the same month a year earlier. Imports totaled 17.6 million gallons in December, 1959, compared with 15.4 million in November and 24.9 million in December, 1958.

### FEED FIRM INCORPORATES

VERSAILLES, KY.—Robert H. Cleveland and Catherine W. Cleveland have filed articles of incorporation for the Woodford Feed Co., Inc., to deal in feeds. The papers specify 1,000 shares, no par.


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# Putting Research To Work

BY SPENCER H. MORRISON, PH.D., D. V. M.

**The Estrogen-Like Substances in Certain Legumes and Grasses. II. The Effect of Stage or Maturity and Frequency of Cutting on the Estrogenic Activity of Some Forages.**

● W. D. Kitts, E. Swierstra, V. C. Brink and A. J. Wood; University of British Columbia; Canadian Journal of Animal Science, Vol. 39, No. 2, pp. 158-163.

ABSTRACT AND COMMENT

Increased interest is being shown by many in the estrogenic content of forage crops. Part of this interest is because of the current pressure on cancer inducing additives to feeding rations, and the fact that undesirable side effects may be produced if the feeder is using estrogenic substances by either the implant or oral route plus receiving similar materials naturally in the roughage and other feeds.

Much of the research so far conducted on the occurrence of natural estrogens in crops has been conflicting and the British Columbia workers have suggested that seasonally induced changes may arise which are independent of the growth pattern of the plant material as far as plant estrogens are concerned.

The method of determining the estrogenic activity in the crops tested was a method developed at this station using a mouse dose response curve in terms of diethylstilbestrol. Alfalfa, ladino clover, birdsfoot trefoil and orchard grass (control) were the crops tested.

**First-Year Cuttings**

It was quite interesting to observe that none of the various first-year cuttings of the various crops showed any estrogenic activity as measured by the method of testing. No explanation is offered for this finding and the workers state that "from this evidence it would appear that there would be no hazard associated with the grazing of breeding animals on first-year stands of these legumes in the temperate latitudes."

When the second-year legumes were allowed to follow their normal growth pattern without being grazed or harvested, it was shown that, in general, the estrogenic activity was relatively high in the spring, declined to negligible levels by mid-summer and then increased to an intermediate level by early autumn. This was not true of birdsfoot trefoil in which no increase was noted with maturity of plant. Orchard grass was essentially devoid of activity regardless of stage.

The authors state that "caution is necessary if breeding animals are to be pastured on the early spring growth of alfalfa and ladino clover in this latitude." Actually, this may not be true, since other workers have demonstrated that variations occur between strains of alfalfa and other crops with respect to plant estrogen content (Purdue, 1956; Western Regional Laboratory, USDA, 1959). It is possible, however, that plant breeders may have to give some attention to estrogenic content of certain legumes in the future.

**Variability**

When several cuttings of the forages were harvested, quite a bit of variability was shown with respect to cutting date. For example, when alfalfa was first cut in May, and then followed with cuttings in June, July and August, the activity closely resembled that of alfalfa allowed to grow without interference—that is, it was highest in the spring, low in July and rose again in August. On the other hand, when the first cutting was delayed until June or later, subsequent cuttings showed very little activity in most instances.

Ladino clover closely followed the estrogenic pattern of ladino clover allowed to grow without interference regardless of date of cutting, possibly due to the more prostrate growth of ladino clover in comparison with alfalfa and the fact that from midsummer onward all growth stages were found in each cutting of ladino.

Only the first cutting of birdsfoot trefoil in May showed any estrogenic activity, with all later cuttings or delayed cuttings being devoid of activity. Also, orchard grass was devoid of activity regardless of time of cutting.

On the basis of these findings the authors state that "one would not expect any deleterious effects on livestock permitted to graze on the aftermath of these forages." British workers previously have arrived at the same opinion for animals grazing such crops under their conditions (Pope, 1954).

Undoubtedly we need more work of this nature conducted under U.S. conditions. It should help explain the varying nature of responses secured with stilbestrol implants or oral feeding using different rations and different roughages; delayed breeding of dairy, beef and sheep females on certain types of legume pasture, and increased milk production of dairy cows, etc., when first placed on "spring grass."

●

**Timely and Worth Noting**

A report was made recently in this column on the series of experiments conducted at Ohio State University on effects of different types of grit for chickens (Feedstuffs, Vol. 32, No. 10, March 5, 1960). A recent investigation by Canadian workers helps to confirm many of the observations made by the Ohio group. (The Influence of Soluble and Insoluble Grit Upon the Digestibility of Feed by the Domestic Fowl, R. E. Smith and T. M. MacIntyre, Canadian Journal of Animal Science, Vol. 39, No. 2, December, 1959).

The grits involved in the Canadian work were: Insoluble quartz grit; soluble calcitic crystalline limestone grit; washed silica sea sand, and a mixture of insoluble and soluble grits. Two experiments were carried out with growing cockerels to study the effects on digestibility of the grits using either mash and grain rations or all whole grain rations.

It was observed that addition of grits in the first experiment when a mash and grain ration was used had a slightly favorable effect on digestibility, but in Experiment 2, when the whole grain ration was fed, grits caused a significant increase in the digestibility of every proximate fraction of the ration.

Although the calcitic limestone type of grit was not retained in the gizzard nearly as long as the insoluble quartz grit, it appeared that insoluble quartz grit, limestone grit, sand and a combination of quartz and limestone grits were all equally effective in improving digestibility of whole grain diets.

Consumption of calcitic grit on a free choice basis would be expected to be greater, according to the authors, but their experiments do not prove this point, other than by inference from the lesser degree of retention in the gizzard.

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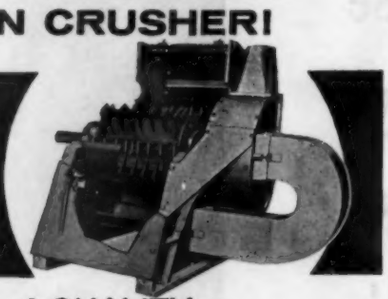

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# Broiler Growth, Feed Standards Published

DURHAM, N.H. — Figures on growth and feed standards for broilers have been published by the University of New Hampshire's Agricultural Experiment Station.

Authors of the information are Willis S. Reed, formerly graduate research assistant, New Hampshire Agricultural Experiment Station, now with Eastern States Farmers Exchange, West Springfield, Mass., and Dr. W. C. Skoglund, professor of poultry science at the university's Agricultural Experiment Station.

Material the authors presented follows:

There is a constant need for up-to-date standard figures for growth, feed consumption and feed conversion for various ages of broilers. With such figures available, the broiler producer is able to determine how his flock compares with a standard flock. With the highly competitive position of the broiler industry, it is absolutely essential that every effort be made to surpass recognized standards or industry averages in order to survive.

The University of New Hampshire, department of poultry science, published growth and feed standards for New Hampshires in 1952 as Station Bulletin 401. These figures were taken from a composite of five strains of New Hampshires entered in the first New Hampshire Broiler Test. These standards were widely used in the industry as a guide, but with the rapid strides made in breeding, nutrition and disease control, such standards have long since been outdated.

In 1958-59 growth and feed standards were obtained for four commercially available strains of broilers. The chickens were typical of the stock being sold commercially now, and in all cases were crosses, either of strains or breeds.

The chicks were raised at the University of New Hampshire in a building heated by a centrally located hot water heating system. Each pen had a capacity of 250 chicks, allowing 1.1 sq. ft. per chick. Feeder space was increased as the chickens grew and after four weeks of age, 2.9 in. per chick of feeder space was provided. A water trough 8 ft. long, from which the chicks could drink on each side, was used in each pen. This allowed approximately .8 in. per chick of watering space.

Feed consisted of a high energy broiler feed in mash form for the first two weeks, shifting to pelleted feed during the third week. A total of 5,250 chicks were reared in three different lots during all seasons of the year.

The figures presented in the accompanying two tables are averages of the four strains and the three lots reared. Table 1 presents the weekly average weight and weekly gain for males, females, and mixed sexes. Table 2 contains the weekly and cumulative feed consumption per broiler, also the feed conversion calculated from mixed sex weight and gain.

It should be pointed out that best use can be made of the figures presented by considering them only as a guide to be surpassed in the broiler grower's own operation.

**TABLE 1. Weekly Average Weight and Gain for Commercial Broilers, 1958-59.**

| Week | Males | | Females | | Mixed sexes | |
|---|---|---|---|---|---|---|
| | Ave. weight lb. | Gain/week lb. | Av. weight lb. | Gain/week lb. | Av. weight lb. | Gain/week lb. |
| 1 | .19 | .19 | .18 | .18 | .19 | .19 |
| 2 | .38 | .19 | .35 | .17 | .37 | .18 |
| 3 | .69 | .31 | .62 | .27 | .65 | .28 |
| 4 | 1.11 | .42 | .98 | .36 | 1.04 | .39 |
| 5 | 1.63 | .52 | 1.39 | .41 | 1.51 | .47 |
| 6 | 2.19 | .56 | 1.78 | .39 | 1.99 | .48 |
| 7 | 2.78 | .59 | 2.23 | .45 | 2.50 | .51 |
| 8 | 3.35 | .57 | 2.66 | .43 | 3.01 | .51 |
| 9 | 4.02 | .67 | 3.13 | .47 | 3.57 | .56 |
| 10 | 4.57 | .55 | 3.53 | .40 | 4.05 | .48 |

**TABLE 2. Weekly and Cumulative Feed Consumption and Feed Conversion for Mixed Sex Commercial Broilers, 1958-59.**

| Week | Feed consumption per broiler | | Feed conversion* | |
|---|---|---|---|---|
| | Weekly lb. | Cumulative lb. | Weekly | Cumulative |
| 1 | .14 | .14 | .74 | .74 |
| 2 | .30 | .44 | 1.67 | 1.19 |
| 3 | .49 | .93 | 1.75 | 1.43 |
| 4 | .68 | 1.61 | 1.74 | 1.55 |
| 5 | .92 | 2.53 | 1.96 | 1.68 |
| 6 | 1.06 | 3.59 | 2.21 | 1.80 |
| 7 | 1.25 | 4.84 | 2.45 | 1.94 |
| 8 | 1.44 | 6.28 | 2.82 | 2.09 |
| 9 | 1.56 | 7.84 | 2.79 | 2.20 |
| 10 | 1.55 | 9.39 | 3.23 | 2.32 |

*Pounds of feed required to produce 1 lb. of live weight.

**RESEARCH, from page 58**

sumption was almost 2½ times as great as consumption of the calcitic grit when directly compared, using whole grain diets. No comparison of this nature was made with respect to limestone vs. quartz grit, and if the comparable data from another group of cockerels is used, actual consumption of quartz grit was higher than the calcitic group during the trial.

These trials also help point out the inherent trouble in trying to arrive at respectable conclusions from small scale trials, since only two groups of eight individually-caged cockerels were used in the first trial, and only two groups of seven individually-caged cockerels were used in the second. The Ohio group pointed out very explicitly that any experiments with grit must be conducted on large groups of chickens and repeated several times before conclusions could be drawn. This is because the differences, if any, are of very small magnitude and the error of chance greatly influences the observations.

The same thing is true of course with many nutritional experiments in which responses are small and help to explain the varying opinions held by many regarding such as the additions of amino acids, unidentified growth factors, ad infinitum.

# Legal Counsel Chosen

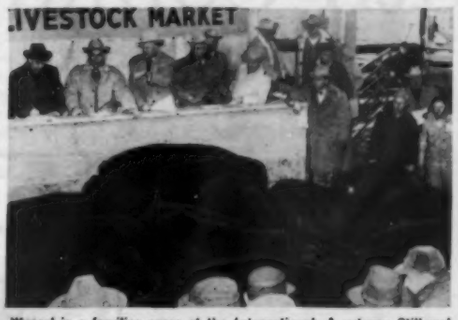
ATLANTIC, IOWA—Dick L. Jensen, Audubon, Iowa, has been named to the position of legal counsel for Walnut Grove Products Co., Inc., with general offices in Atlantic, J. J. O'Connor, president of the feed manufacturing firm, has announced.

Mr. Jensen, who has practiced law in Audubon for the past two years, holds a bachelor of law degree from the State University of Iowa.

**Norman ("Shorty") Peterson,** Havelock, Iowa, feeds out about 1200 cattle a year. "We started feeding supplement with Stilbosol as soon as it became available in '54," Peterson explained. "We just won't feed without it. Why, we've had steers to gain as much as 3.68 pounds per day for their entire time on our farm. Of course, we buy cattle with built-in gainability." This was Mr. Peterson's tip-of-the-hat to the Drayton Ranch at Valentine, Nebraska, which supplied him with the calves that went on to capture first place in the heavyweight Angus division.

# Again...Stilbosol-fed carlots rank high at International

***Peterson and Brechler load awarded first prize in heavyweight Angus group at Chicago's International Livestock Exposition. Heavy Herefords take second. Heavy Angus and light Herefords place third in their classifications.***




**Wessel** is a familiar name at the International. A veteran Stilbosol feeder, Winston Wessel (dark jacket) has taken home many honors with his fine fat cattle since 1940. This year, in partnership with his neighbor, Roland Kroymann (far right), he added third prize in the heavyweight Angus class to his list of winners.

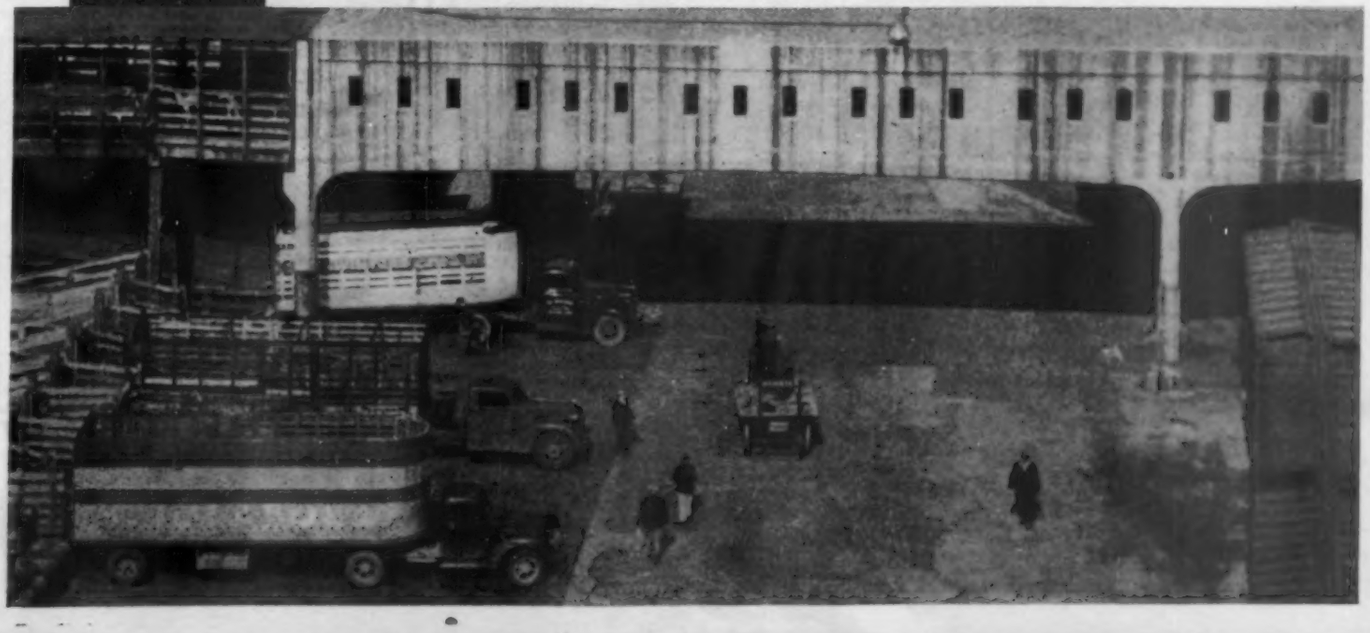
**Maurice Crawford** of Wellman, Iowa, fed and groomed his Stilbosol-fed steers to second prize in the heavyweight Hereford group. He was a mighty happy man as he said, "Sure can't complain of the results on this load of steers!"

**Harold Alfredson** from Big Rock, Illinois, placed third in the light-weight Hereford class. Harold does an outstanding job with Stilbosol supplements and feedlot mechanization to increase gains and cut costs of building beef.

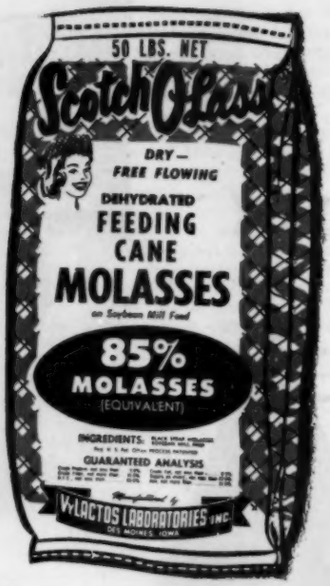
Lilly

Makers of **Stilbosol®** (diethylstilbestrol premix, Lilly) • **HYGROMIX®** (*S. hygroscopicus* fermentation products, Lilly)
**Micro-Pen®** (special coated procaine penicillin G, Lilly) • Procaine-Penicillin-G • Vitamin $B_{12}$

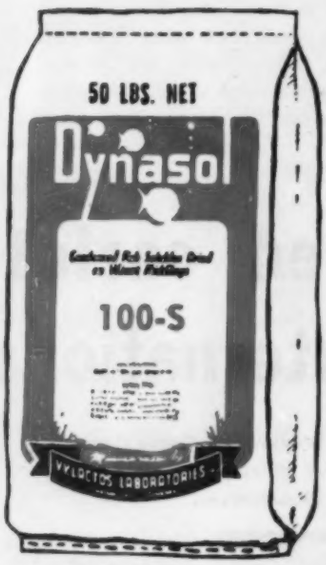
**ELI LILLY AND COMPANY • AGRICULTURAL AND INDUSTRIAL PRODUCTS DIVISION • INDIANAPOLIS 6, INDIANA**



# Products from Vy Lactos



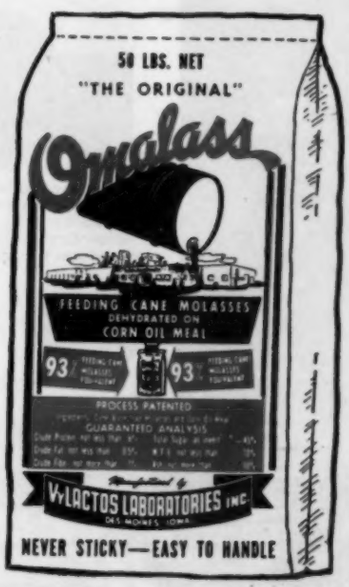

*The Thrifty Dried Molasses Product*




*Dried Fish Solubles*

## that you buy with Confidence

## and sell with Pride




*The Original Dried Molasses*

VyLACTOS LABORATORIES INC.
DES MOINES, IOWA
WRITE FOR DETAILS
VY LACTOS LABORATORIES
1901 E. EUCLID AVE. • DES MOINES 13, IOWA

## *Promotion of Eggs Discussed at Texas Egg Council Meeting*

SAN ANGELO, TEXAS—The surest way to get Texas people to eat more eggs is to advertise the product. This was the theme of Texas Egg Council which met here to spur the sale of eggs in the Lone Star state.

People do not buy what they have not seen advertised, said James Dobbyn, the council's district chairman and executive of Power Feed Mill at Abilene, Texas. He pointed out that the egg industry has had no promotion in the past, but if poultrymen and dealers are to survive they must have such promotion now.

Another speaker, Ted Workman, Advertising, Inc., Dallas, said he believed the industry's problem is not over-production but rather under-production, and emphasized that the egg industry was well worth saving.

In Texas, poultry and eggs are worth $148 million per year. Of this total, eggs make up 43.8%, broilers 38.6%, and turkeys, farm chickens and others make up the remainder.

Per capita egg consumption has been dropping despite the low cost of eggs. In 1956 consumption was 368 per year, 358 in 1957 and 349 in 1958. Figures may show that it has risen slightly for 1959, but this has not been proved yet, he said.

Joe H. Longhammer, Dallas marketing specialist, told the group that power of suggestion is very important. He said that surveys showed that only 30% of egg customers planned to buy eggs when they entered the grocery store. The others buy them on the basis of sight and impulse.

The council has planned a promotion campaign that will cover most of the regular advertising media. Much of this will be built around slogans. The first one will be "Eggs for Lunch."

There also may be sales gimmicks, such as a Texas Egg Festival and an egg queen. Maybe even an egg song, "Music to Eat Eggs By."

## *Bulk Feed Station*

REMINGTON, VA. — Remington (Virginia) Farmers Cooperative has opened a new bulk feed station for business.

The station consists of six 24-ton Butler tanks with an air unit for loading and unloading from railroad cars to tanks to trucks.

Company officials said the station will serve patrons in Culpeper, Remington and Warrentown, Va., areas.

## 50th Anniversary

PHILADELPHIA — This year marks the golden anniversary of the founding of Charles A. Wagner Co., Inc., Philadelphia. The company was founded in 1910 by Charles A. Wagner and incorporated in 1920 with Mr. Wagner as president.

The company supplies specialty items to the feed and chemical industries. The firm represents producers of these mineral products and maintains warehouse facilities in Philadelphia.

## New Plastic Resin Developed for Bags

BARTLESVILLE, OKLA.—Development of a new tailored plastic resin that produces a film said to have "a burst strength superior to conventional polyethylene or Kraft multiwall bags," was announced recently by Phillips Chemical Co., producer of linear polyethylene.

"Seven mil bags of Marlex TR-101 have demonstrated a burst strength 2½ times that of 10 mil conventional polyethylene, 38% more tensile strength and more than 25% improved moisture barrier," said company officials.

Officials said a typical 50-lb. size bag costs 20¢, as against 22¢ for 10 mil polyethylene. They noted that "five mil bags made of TR-101 resin, costing 16¢, have been found superior in strength and moisture resistance to polyethylene-coated multiwalls, costing the same amount.

"Weight savings realized from the thinner film come to more than 800 lb. over kraft paper in a carload lot of about 1,500 bags and as much as 240 lb. over conventional polyethylene," said officials.

The company noted favorable test results in breakage record, slippage and bag production rates.

Among the products for which TR-101 bags have been tested and are considered promising by plant officials are: Dog food, fertilizers, seeds and dried milk products, calcium chloride, boric acid, peat moss, drilling-mud additives, smokeless powder, dyes, waxes, salt and anhydrous ammonium chloride.

## *Joins Arbor Acres Sales, Service Staff*

GLASTONBURY, CONN. — Olin Joffrion has joined Arbor Acres Farm and will be in charge of sales and service in Louisiana, Texas, and Mexico.

Olin Joffrion

Mr. Joffrion was graduated from Louisiana State University with a B.S. in agriculture, and was an assistant county agent for several years. More recently he was associated with the Matthews Feed Co., New Orleans, as poultry specialist and with Flowood Corp., Jackson, Miss., where he was in charge of two farms with a total hen capacity of 200,000.

Mr. Joffrion's home is in Bell Rose, La.


**HAVE YOU HEARD *About . . .***

Doty Laboratories Roughage Testing Service that Builds Livestock Feed Sales for Feed Manufacturers. See Feedstuffs Feb. 20, Page 93, or write to **Doty Laboratories, 1435 Clay St., No. Kansas City, Mo.**

PAY WAY EXTRA RICH FEEDS ARE FAST SELLERS
Pay Way Feed Mills, Inc. Kansas City, Mo.

EUREKA

*. . . keeps your production up and costs down . . . with*

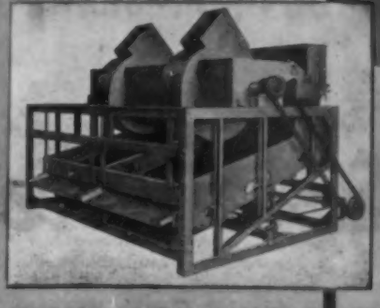
**PERFORMANCE-PROVED CLEANERS**

RIGHT →

**EUREKA TWIN SHOE SUPER CLEANER** doubles your capacity in the same floor space. Over 40 sizes in Twin Shoe or in 3 & 4 screen, 2 air Standard and Special models. Capacities to suit every requirement. Standard or All-Steel Construction.

BELOW ↓

**EUREKA RECEIVING SCALPERS** are tops for speed and volume. Available in 11 sizes in one and two-screen models. Capacities to 15,000 bushels per hour. Standard or All-Steel Construction.



**OTHER EUREKA EQUIPMENT** for cleaning, sifting and screening includes . . .
Snappy Shaker
Snappy Air Finisher
Barbeau Jr. Cleaner
Aspirators

**FASTER CLEANING** of any grain is just *one* big advantage you get from EUREKA equipment. From the widest line of standard models available anywhere, you always get the *right* type, size and capacity for any cleaning job. When custom-built units are required, EUREKA engineers are at your service in designing equipment to meet the most exacting specifications.

**EXCLUSIVE FEATURES** include positive brush cleaning assembly and quick-change screens. And the unequalled quality and dependability built into all EUREKA equipment means long years of rugged, trouble-free service . . . at lowest possible cost.

**BEFORE SHIPMENT** to a customer, EUREKA equipment is completely assembled and operated at rated speed in the factory. After final approval, the EUREKA trademark is placed on the unit.

**S. HOWES CO., INC.**
SILVER CREEK, NEW YORK
*Since 1856 only one grade of equipment . . . the FINEST!*

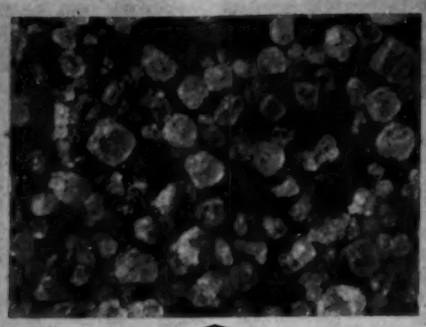
*There's more information* for you on Eureka cleaning equipment. Use this handy coupon — or write, wire or phone, if you prefer. You'll get prompt, personal attention to any request.

I'd like all the facts, including prices, on the items checked:
☐ Twin Shoe Cleaners ☐ Snappy Shakers ☐ Barbeau Jr. Cleaners ☐ Aspirators
☐ Receiving Scalpers ☐ Snappy Air Finishers ☐ Other equipment _____ (Please Specify)

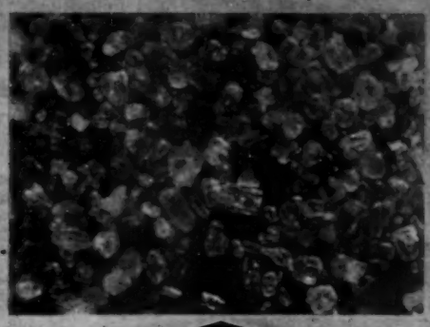
Name _____
Company _____
City _____ Zone _____ State _____

## These Actual Photos Tell The Story...

Grace Micro-Prilled Urea Feed Compound — The smooth, round balls are free-flowing, non-caking



PRODUCT A



PRODUCT B

ALL 3 PHOTOS ARE 12 TIMES ACTUAL SIZE

# Only Grace Urea Feed Compound

Assures

✓An Even, Uniform Mix Throughout

✓Easy Blending In Any Standard Mixing Equipment

because Grace has

*Micro Prilling* *

Write for complete details.

* Micro-Prilling, a special Grace process, produces a feed compound in the form of tiny balls that are truly free-flowing. Each ball is clay-coated to prevent caking.

**SMOOTH • ROUND • FREE-FLOWING**

**Grace Chemical Company** *A Division of W. R. Grace & Co.*

MEMPHIS—147 Jefferson Ave., JAckson 7-1551 • CHICAGO — 75 E. Wacker, FRanklin 2-6424
TAMPA—2808 S. MacDill Ave., 82-3531 • NEW YORK — 7 Hanover Square, DIgby 4-1200
ST. LOUIS—8230 Forsyth, PArkview 7-1715

**OHIO FEED CONVENTION**—George Moorhead (center, first picture), Moorhead Elevator Co., Leipsic, Ohio, was elected to a second term as president of the Ohio Grain & Feed Dealers Assn., Inc., at the 81st annual convention of the group Feb. 21-23 in Toledo. His assistants will be (left to right): Richard E. Shirack, Delphos, second vice president; Carl Pitstick, Early Elevators, Inc., Waynesville, first vice president; James Kile, Fred Kile & Son, Inc., Kileville, treasurer, and George Greenleaf, Worthington, executive secretary. George Forrester, Forrester Grain Co., Toledo (not shown) was reelected corporation secretary. A prediction of 60 million tons of formula feed annually within the next 10 years was made by Fred McLimore (center picture), division sales manager, Ralston Purina Co., Columbus, Ohio, in a talk to the Ohio group. In the third picture, a four-man panel, moderated by Dr. J. W. Sharp, associate professor in agricultural markets, Ohio State University, discussed marketing methods and problems as they affect independent and cooperative grain elevators, feed dealers and fertilizer distributors (left to right): Fred Duncan, Metamora; Reed Rexford, Neward; Wayne Geeting, Savona, and Elmer Fischer, Minster.

## Simonsen Appoints Sales Representative

QUIMBY, IOWA—Appointment of James Morgan as sales-service representative of the Simonsen Manufacturing Co. has been announced by Merle W. Simonsen, manager.

James Morgan

Mr. Morgan will service the complete line of Simonsen bulk feed bodies and Simonsen bulk fertilizer spreaders.

Mr. Morgan has been with the company for four years and has worked in the research engineering and development programs prior to accepting his new position.

His territory will be southern Iowa, Missouri, Kansas and Nebraska. Mr. Morgan will work out of Quimby for the present.

### EGG FIRM FORMED

DENVER, COLO.—True Egg Co. has been incorporated to breed, raise, buy, sell and deal in all kinds of poultry and eggs by Myron M. Miller, Stanton D. Rosenbaum and M. E. Ferry. Directors are these persons and Samuel M. Goldberg.


m-m-m-NEW

CALF-PAB MILK REPLACER

Nectarized FOR GREATER PALATABILITY

Smells Better
Tastes Better
SELLS FASTER!

WRITE TODAY for new "NECTARIZED" Calf-Pab Sales Aids, New Nectarized Pablets and Calf Meal

SAVE 28¢

Blatchford's
ESTABLISHED IN 1900
Main Plant & Offices: Midwest Division, West Coast Division
WAUKEGAN, ILL. Des Moines, Ia. Nampa, Idaho

these men have designs on your business!

These calculating individuals have plans to make your new feed mill the most efficient, profit-producing operation possible. They figure that they can deliver maximum production, low operating costs, more profitable results. And . . . unless you're the rare exception . . . they're absolutely right!

They're experts in many fields . . . plant automation, efficiency evaluation, machinery design, financing and contracting. They originate radical new ideas and methods to change "it-can't-be-dones" into "I-wouldn't-have-believed-its".

As part of the Myers-Sherman automation engineering team, their job is to create new and better mills and mill equipment. They're the idea men whose revolutionary new concepts are incorporated in every piece of the famous Fords line we manufacture. Mills of their design which are completely operated electronically by one man are already in use and that's just the beginning.

You can put them to work designing your complete new mill . . . or modernizing your present one . . . at our expense! They'll show you how it should be planned to fit your individual needs . . . explain how we can take the whole job off your hands or tackle any part of it you wish . . . give you the details on the 54 convenient Myers-Sherman purchase plans that let you pay as you earn. We can even lease it to you if you wish!

Mail this coupon for our new booklet on complete mill planning and construction services.

MS

MYERS-SHERMAN CO.
STREATOR, ILLINOIS
Phone: Streator 2-2176 Established 1911

MYERS-SHERMAN COMPANY
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Please send me your new booklet on complete mill planning and construction services.

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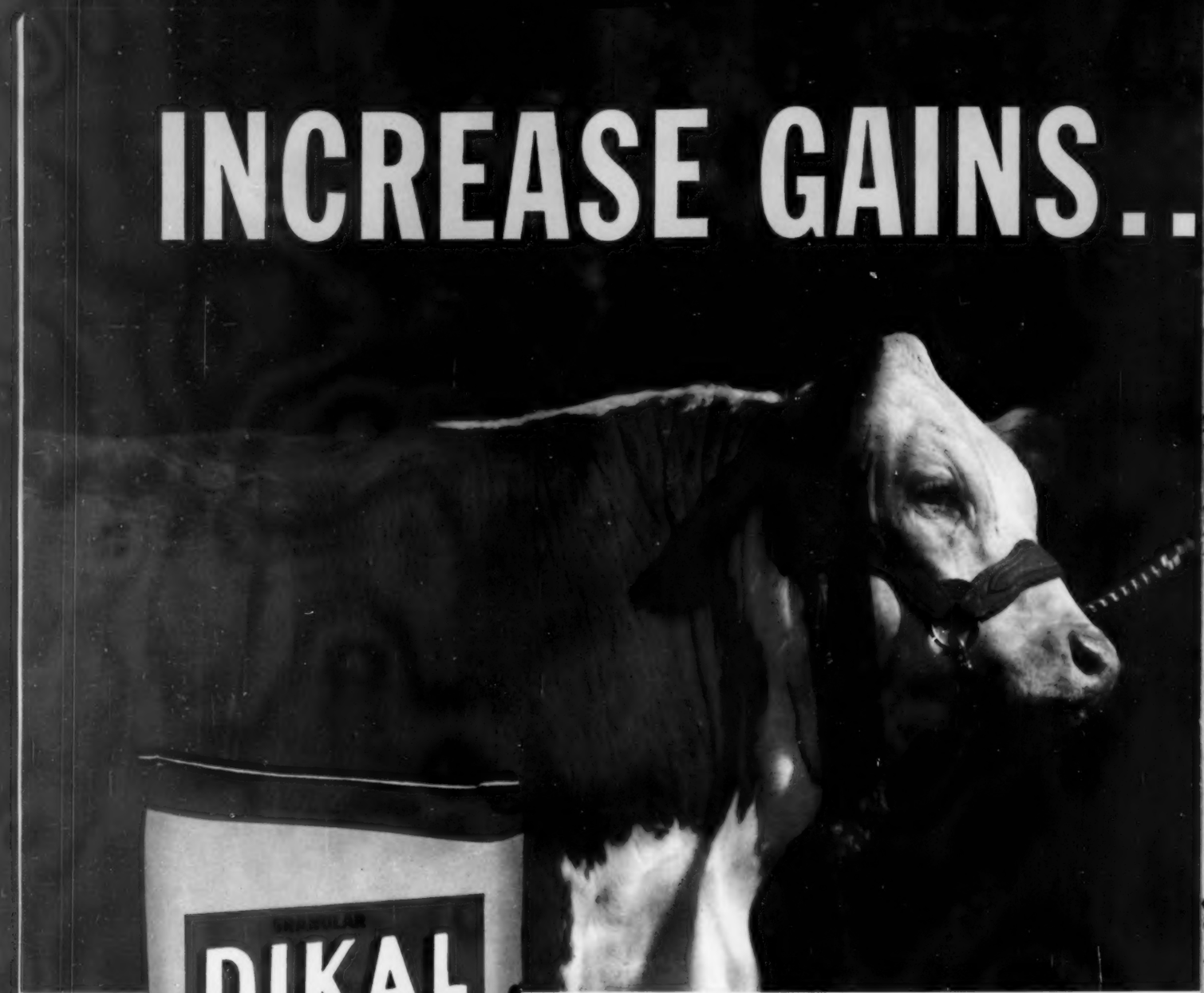
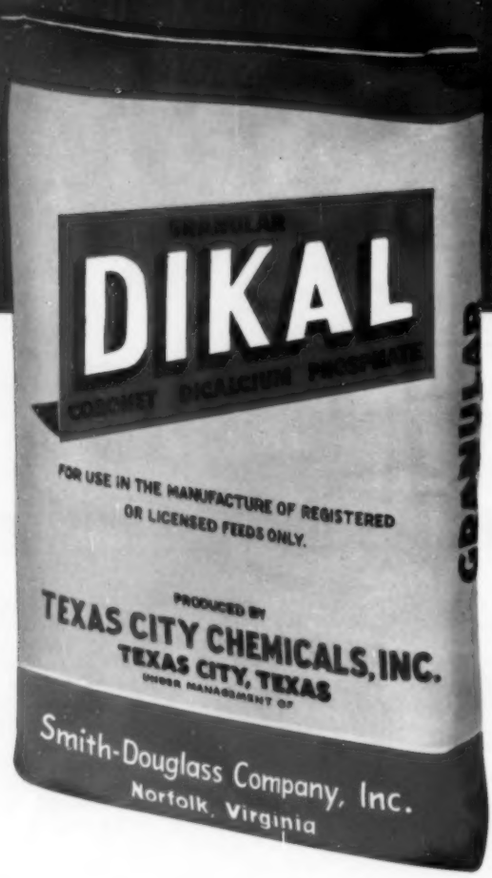
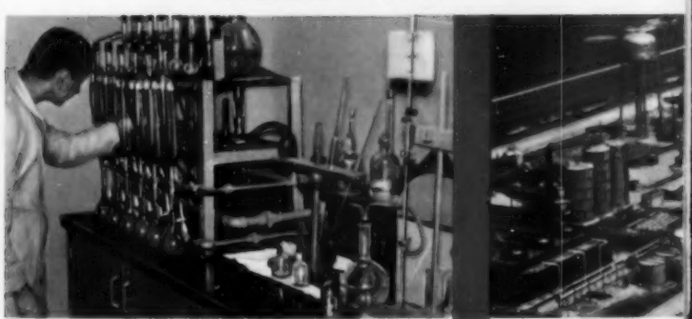
CITY_____ STATE_____

# INCREASE GAINS..






## RESEARCH



*CORONET GRANULAR DIKAL is backed by 50 years of RESEARCH which delivers an increasingly BETTER PRODUCT . . . year after year!*

## GUARANTEED UNIFORM ANALYSIS

| Phosphorus | Calcium | Fluorine |
|---|---|---|
| 18.5% min. | 21.0% min.<br>24.0% max. | 0.12% max. |

Screen Analysis: All through 20 mesh; 80% to 90% on 200 mesh.

# use higher dicalcium phosphate levels

## FEEDING TRIALS PROVE BENEFITS

*Rations supplemented with higher dicalcium phosphate levels produced faster liveweight gains and more efficient feed utilization in a series of cattle feeding tests at State Agricultural Experiment Stations.*

**IOWA STATE[1]**

Tests conducted by Iowa State College researchers indicate cattle receiving higher dicalcium phosphate rations graded higher at slaughter and returned greater margins over feed costs. The Iowa State report concludes . . . in some cases a higher level of total ration phosphorus, possibly as high as 0.3 percent, may well be needed.

**PURDUE[2]**

According to a study conducted by Purdue University researchers, raising the phosphorus level in a corn-soy ration from 0.30 to 0.45 per cent improved rate of gain 29% and feed efficiency 6.6% when fed to growing swine on ladino pasture. A further increase in phosphorus to 0.60% improved feed efficiency 5.7%, but failed to stimulate gains further.

Several pigs on the corn-soy basal ration exhibited borderline phosphorus deficiency symptoms.

**SOUTH CAROLINA[3]**

An animal deficient in phosphorus from either hereditary genetic defects, or because of prior consumption of a low phosphorus ration may bloat, regardless of the level of nutrition in the feed crop. Therefore, a critical phosphorus deficiency in ruminants should be corrected through feeding of dicalcium phosphate or other mineral phosphates or by feeding high phosphorus concentrated feeds prior to being placed on luscious legume pastures.

**TEXAS[4]**

In feeding trials on the King Ranch in Texas, cows fed supplemental phosphorus weaned 39% more calves, averaging 50 pounds more weight per calf. In addition, feed lot operators in the Southwest have discovered that higher phosphorus levels result in faster gains.

## USE MORE CORONET GRANULAR DIKAL IN YOUR FEEDS

1. Different Kinds and Amounts of Phosphorus in Fattening Cattle Rations. Agricultural Extension Service A. H. Leaflet 209. Iowa State College. Wise Burroughs, Arthur Raun, Edmund Cheng, C. C. Culbertson.
2. Phosphorus and Protein Levels for Growing-Finishing Swine on Legume Pasture. A. H. 215. Purdue University. C. E. Jordan, J. H. Conrad, M. P. Plumlee, W. M. Beeson.
3. Relation of Phosphorus Deficiency to Acute Bloat in Ruminants. H. P. Cooper, 69th Annual Report South Carolina Agricultural Experiment Station, Clemson, S. C., May, 1957.
4. Methods of Supplying Phosphorus to Range Cattle in South Texas. Texas Agricultural Experiment Station Bulletin 773. E. B. Reynolds, J. M. Jones, H. H. Jones, J. F. Fudge and R. J. Kleberg, Jr.

**QUALITY** **SERVICE** **DUST-FREE**

*CORONET GRANULAR DIKAL, produced under meticulous and carefully controlled manufacturing conditions at this modern facility in Texas City, Texas . . . is a highly available source of phosphorus.*

*CORONET GRANULAR DIKAL assures a constant supply when you want it . . . in any desired quantity. Feed manufacturers enjoy faster, more dependable service from Texas City.*

*CORONET GRANULAR DIKAL eliminates annoying dust in bagged or bulk shipments. Additionally, Granular Dikal improves dispersion because of similarity in particle size to other feed components.*

## LET US FIGURE THE COST OF DIKAL DELIVERED TO YOUR PLANT

DIKAL

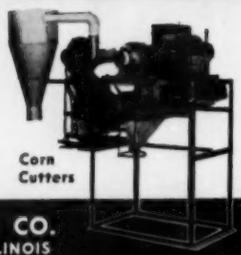
A PRODUCT OF THE

**SMITH-DOUGLASS**

COMPANY, INCORPORATED • NORFOLK 1, VIRGINIA

**BIG CHIEF**
Pit Augers • Elevator Legs • Mixers • Scalpers •
Graders • Earcorn Crushers • Steel Bins

Hammer Mills 50 to 150 H.P.


Corn Cutters

CUSTOM MILLERS SUPPLY CO.
BOX 507 MONMOUTH, ILLINOIS
MANUFACTURERS OF QUALITY MILLING EQUIPMENT SINCE 1930

## *Hog Embargo Lifted*

WASHINGTON — Ezra Taft Benson, secretary of agriculture, expressed gratification at the announcement by the Canadian government ordering removal of the embargo on U.S. hogs and pork imposed on Aug. 29, 1952, because of the existence of vesicular exanthema (VE) in several states of the U.S.

In December, 1959, Canada and all other countries embargoing the importation of U.S. hogs or pork because of vesicular exanthema were officially notified that the U.S. had been declared free of this disease.

Announcement that the disease had been eradicated was made by Sec. Benson Oct. 22, 1959.

### FEED FIRM SOLD

PARIS, TEXAS — Vic Jumper has sold Lamar Produce & Feed Co. in Paris to Lamar Feed Mill. Mr. Jumper joined Lamar Feed Mill as plant manager.

## Production Control Bill Is Opposed by Northeast Poultry Unit

WASHINGTON—"Production controls for the poultry industry are an open invitation for other food items to grab an even bigger slice of the consumer dollar, the Senate was told here recently by the Northeastern Poultry Producers Council.

Ernest F. Smith, Jr., Kenton, Del., president of the group, warned the Senate Committee on Agriculture that artificially raising prices would "invite other food items to step in and capture an even larger share of the poultry and egg market."

He went on to point out that "a good many of the poultry industry's current economic ills are directly due to controls and price supports on other farm commodities."

"It is quite clear," he continued, "that the poultry industry has suffered greatly from controls upon other agricultural commodities. How much more would it suffer if its own production and marketing capacity were restricted or controlled?"

In his testimony opposing Senate Bill 2516, which provides for the curtailment of poultry and egg production, Mr. Smith also rapped the "free hand" that it gave to the secretary of agriculture.

"NEPPCO is opposed to any and all legislation which would directly or indirectly impose government controls or restrictions upon the production or marketing of any agricultural product," he concluded.

## *William A. Bentzin Joins Feedstuffs Staff*

MINNEAPOLIS — William A. (Bill) Bentzin has been named to the editorial staff of The Miller Publishing Co. He will be working primarily on Feedstuffs, one of Miller's eight business publications.

Bill Bentzin

Mr. Bentzin formerly was on the staff of the Duluth Herald and News-Tribune. His earlier experience includes work as a reporter for the Globe-Gazette in Mason City, Iowa.

Mr. Bentzin is a graduate of the University of Minnesota.

## *Doane Promotion Manager Is Named*

ST. LOUIS, MO. — Promotion of Jesse A. Neal, Jr., to manager of the promotion department of Doane Agricultural Service, Inc., has been announced by A. J. Berwick, president.

Mr. Neal joined the promotion department after graduating from Southeast Missouri State College in 1951. He was responsible for developing circulation of "Farming for Profit," a farm management letter mailed by banks and local businesses to their customers. Recently he has served as assistant manager of the department.

Mr. Neal replaces Ronald Colston, who has directed advertising, selling and public relations activities for the past 17 years. Mr. Colston starts on the company's graduated retirement program April 1. He will continue to handle the public relations activities of the company on a part-time schedule.

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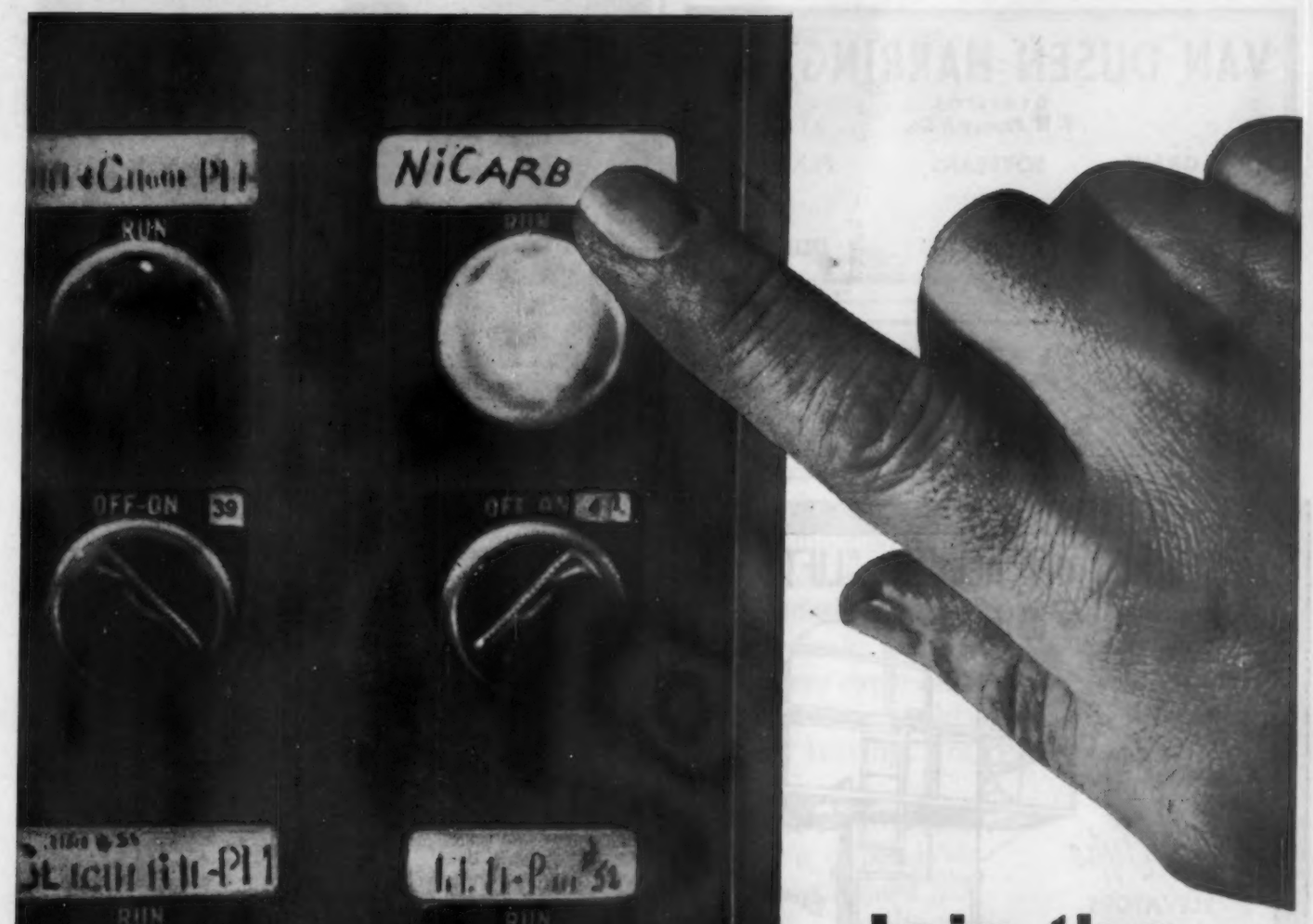


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NORTHWEST MEETING—John T. Connor (center), president of Merck & Co., Inc., Rahway, N.J., spoke at a recent meeting of the Northwest Feed Manufacturers Assn. in Minneapolis. Shown with Mr. Connor are A. H. Roffers (left), Farmers Union Grain Terminal Assn., St. Paul, association president, and E. C. Fuller (right), Nutrena Mills, Inc., Minneapolis, who introduced the speaker.

## *Northwest Feed Men Told of Procedure to Improve Management*

MINNEAPOLIS — The development of objectives as a guide and statement of responsibility for each area of a company can be the key to more effective management, northwest feed men were told by the president of Merck & Co., Inc.

Speaking on "An Approach to Management Effectiveness," John T. Connor described in detail Merck's experience in improving management. He addressed some 150 members of the Northwest Feed Manufacturers Assn. at a regular dinner meeting at the Calhoun Beach Hotel.

The president of the large Rahway, N.J., drug and chemical firm called management effectiveness a mixture of many elements. "Certain ingredients appear to be common to most management prescriptions," he said. They include adequate financing to accommodate expansion, employees with management potential, "products of value," and intangibles like imagination and optimism. However, a key factor is the development of specific objectives.

Mr. Connor said that in Merck, a list of specific goals which the corporation, each division and each department seeks to reach is clearly spelled out, and individuals also make up personal objectives.

"From research to product development and mass production to marketing," he said, "we are dependent upon individual effort and individual ability to a degree beyond that of many other businesses."

At the beginning of every year, members of the company write down the goals they plan to reach in carrying out their assignments. At the end of the year, their performances can be measured in terms of results and compared with their objectives, and incentive awards distributed accordingly.

"The activating ingredient in the entire mix," Mr. Connor said, "is concern for the individual, concern not only for his rights and dignity but concern for the atmosphere and the circumstances under which he works so that maximum creativity and effectiveness can be realized for his own satisfaction and for the good of the entire enterprise."

Citing the growing population and increased food needs and changes in agriculture, Mr. Connor told the feed men: "It seems to me imperative for every company concerned with agriculture to make its management as effective as possible if it is to meet successfully the challenges and problems that will inevitably be posed in the future, and adapt successfully to the shifting conditions that will be encountered."

Mr. Connor pointed to improvements in agriculture already made by industry, and he told of some of Merck's activities. He noted that the company had developed "at least 20 important new products in the field of animal nutrition and health."

"The overwhelming majority of our products have been the result of Merck's own research efforts, developed and perfected in our laboratories," he said. "Our research budget was more than $18 million in 1959 and totaled $119 million over the past 10 years."

He mentioned that Merck had conducted numerous field tests with an "entirely new coccidiostat made from a compound of chemicals never before used for this purpose."

Asked about additive and feed problems resulting from the current federal control situation, Mr. Connor said that a committee recently named by the White House can proceed on an objective basis and can get the views of USDA and others as well as of the Food and Drug Administration. However, he said he does not look for "a quick or easy solution." He pointed out that the problem now is in the political area.

## Goal of Research Farm Is Disease-Free Hogs

URBANA, ILL.—A team of animal scientists, veterinarians and agricultural engineers at the University of Illinois Moorman Research Farm will attempt to develop and maintain a disease-free swine herd.

"If this goal proves successful," Dr. A. H. Jensen said, "we can help conquer the No. 1 enemy of efficient hog production."

Dr. Jensen will direct management and environmental studies at the College of Agriculture's new Moorman Farm. Already under construction, it is to be completed in 1961. A $200,000 grant from Moorman Manufacturing Co. has made the farm's construction possible, he said.

Although the farm is designed primarily for animal breeding studies, researchers can also study management and environmental conditions. Disease prevention and control will be a key area in this work. Veterinary medicine researchers will work hand in hand with the animal scientists.

Dr. Jensen noted that researchers will take the original Moorman farm pigs by Caesarean section. This will prevent them from getting any diseases from their dams. The pigs will be raised in isolation, as free as possible from diseases. Successive generations will farrow naturally, but in isolation quarters.

Turning to the management studies, Dr. Jensen and his co-workers will study such factors as different housing systems, location of feeders and waterers, floor space requirements, manure handling and disposal, ventilation, heat and air-conditioning and lighting systems.

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# Symposium on Use of Disciplines In Nutritional Research

By Dr. Myron Brin
State University of New York

*EDITOR'S NOTE: The accompanying article is the last in a series from the annual meeting of the Animal Nutrition Research Council. This article is a summary of the proceedings of a symposium on "The Use of Various Disciplines in Nutritional Research." The summary was compiled by the moderator, Dr. Myron Brin, assistant professor of medicine and biochemistry at the Upstate Medical Center, State University of New York. Participants were Dr. Daniel Steinberg, National Institutes of Health, Bethesda, Md.; Dr. Leon Miller, University of Rochester; Dr. Harry Eagle, National Institutes of Health, and Dr. Brin.*

In opening the conference this year, the moderator, Dr. Myron Brin of the Upstate Medical Center, State University of New York in Syracuse, remarked that since nutritional research scientists must be able to integrate and utilize knowledge in all spheres of man's endeavor, the possibilities for the program appeared infinite. It was suggested then to have as the underlying theme, "The Levels of Organization of the Animal Organism."

With this in view, it may be obvious that the first speaker, Dr. Daniel Steinberg of the National Institutes of Health in Bethesda discussed newer isotope techniques and associated problems on the whole or intact animal, the highest level of organization.

Dr. Leon Miller of the University of Rochester then discussed the contribution potential for nutrition of the use of an intact organ or a perfused organ system.

Dr. Harry Eagle, also of the National Institutes of Health, who has made great strides in elucidating specific nutritional requirements of individual cell types in culture, then proceeded to describe what cellular biology has to offer the nutritional scientist.

Lastly, Dr. Brin closed the formal presentations by a talk at one of the lowest levels of organization, almost of disorganization, namely, the use of the enzymes of the broken cell but as a reflection of the nutrition of the whole organism.

Dr. Steinberg reviewed many of the analytical problems involved in studying the fate of a given compound in the whole, intact organism. The bases for his presentation were studies from his own laboratory on the study of cholesterol and bile acid metabolism by the use of the tracer technique, a subject of very active interest in nutrition today. He found that attempts to determine, by direct means, the daily excretion of fecal steroids and bile acids were frustrated by (1) the dietary contribution of vegetable sterols difficult to distinguish from cholesterol, and (2) the conversion of sterols and bile acids to other chemical forms by the action of intestinal flora. Dr. Steinberg said that these difficulties had been circumvented by introducing into patients, by the intravenous route, radioactive cholesterol in combination with serum lipoproteins. Serum lipoproteins were labeled with radioactive cholesterol by a very novel technique. The serum of the patient (containing that individual's normal lipoproteins) was incubated with radioactive cholesterol in vitro. The exogenous radioactive cholesterol exchanged with the cholesterol in the patient's natural lipoprotein by a normal exchange reaction.

The now labeled lipoprotein was then analyzed, its specific activity determined and was reinjected into the individual from which it had originally been derived. It was shown that the specific radioactivity of the excreted fecal sterols and bile acids paralleled that of the labeled serum cholesterol which was injected. This then permitted the calculation of net excretion of both classes of compounds as a group, from (1) a knowledge of the total radioactivity excreted and (2) the specific radioactivity of the serum cholesterol. The chemical interference of dietary sterols was thereby eliminated. By the use of this method it was shown that the absolute excretion of cholesterol per se is an important pathway in man. furthermore it was shown that whereas certain dietary fats can markedly influence the cholesterol content of the blood, no important influence of the nature of dietary fat on sterol of bile acid excretion was demonstrated.

Dr. Steinberg's presentation demonstrated the value of the use of a radioactive tracer in order to differentiate between the compound in which one is interested from that which might be a contaminant in the diet. It served, furthermore, to emphasize that the use of isotopes in the intact animal does not release the investigator from chemical analytical responsibility, but rather places a burden of proof on his shoulders, in that he must show the compound being measured was derived directly from the compound which was administered. Of course, it is recognized

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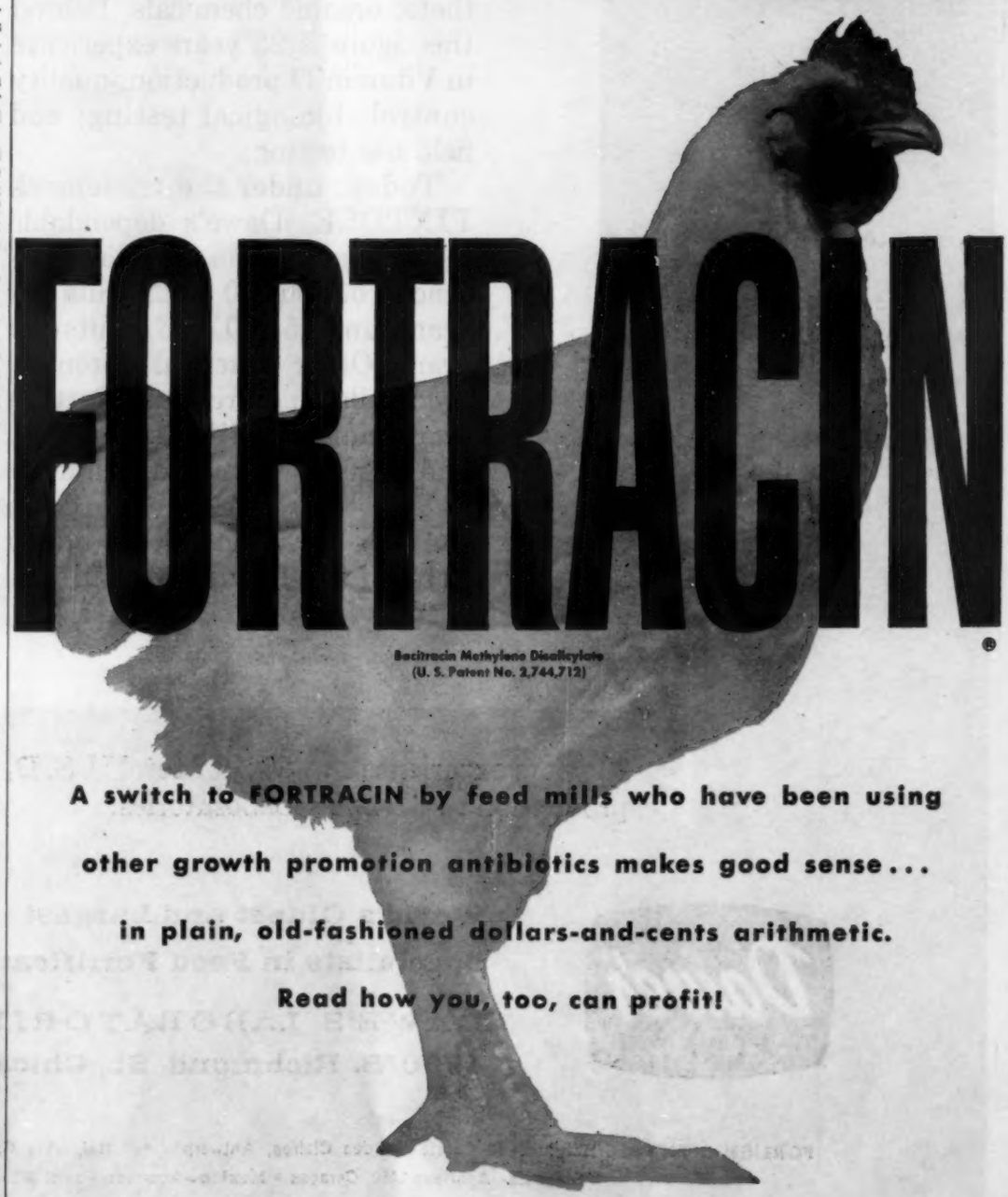

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that the use of the intact organism is the ultimate test in nutritional work and that the use of radioactive isotopes lends us a remarkable refinement in this experimental technique.

Dr. Miller discussed the intact perfused organ and possible application of this technique to nutrition research. A review of the literature by Dr. Miller showed that the intact perfused organ has not been a very popular experimental approach in the past. He emphasized that early attempts at this technique, beginning before the turn of the twentieth century, were hampered by a lack of the now essential techniques of physiology such as proper anesthesia, good surgical technique and instrumentation, the availability of finer anticoagulants, biochemical understanding of the metabolites essential for survival, and the availability of nonwettable surfaces for the perfusion mechanism.

In addition to these, Dr. Miller expressed the belief that the most fundamental advance in perfusion techniques during the last number of years has been the use of a perfusion medium containing erythrocytes instead of a synthetic physiological salt solution to maintain homeostasis. It was his feeling that the use of a homolygous blood system permitted the organ to maintain its integrity over a longer period of time thereby permitting the investigator to get more abundant and truer physiological information from the preparation.

Included in the summary of the literature were applications of the intact perfused organ as related to brain, kidney, hind limb, heart and liver metabolism.

A further advance which enhanced the value of the intact perfused organ as a tool was the use of isotopically labeled metabolites to study biochemistry and nutrition. Dr. Miller presented studies from his own laboratory on liver metabolism as studied by the perfusion technique. These included bile excretion, amino acid oxidation, urea formation, glycogen synthesis, plasma, protein synthesis and also the response to insulin and growth hormone. Much of this work was facilitated by the use of radioactive labeled substrates. Studies on urea excretion clearly illustrated the nitrogen sparing action of carbohydrate. This was shown by depressed urea synthesis in the perfused liver upon adding glucose or fructose to the perfusing medium. By the use of glycine labeled with carbon 14 in the epsilon position, it was shown that the isolated perfused liver incorporates lysine into the plasma albumin, alpha globulin, beta globulin and fibrinogen fractions of the plasma proteins.

It would appear that the ability to isolate intact organs in vitro is now a reality. Upon reviewing the many contributions of the perfused organ technique presented by Dr. Miller, it would appear that the total value of this procedure to nutritional research is yet to be achieved.

Dr. Eagle's paper on the nutrition and metabolism of human and animal cells in culture was a most interesting presentation of developments in our understanding of cell biology. He proceeded to differentiate between the study of tissue culture and that of cell culture. He described that tissue culture is the maintenance of a group of cells growing as a tissue in an explant, while being maintained in a controlled environment. As such, the tissue accumulate by cell division and build up a tissue mass. Cell culture, on the other hand, is the culture of discrete free growing cells in a controlled nutrient medium.

Dr. Eagle's technique is one by which human cells or cells obtained from tissues of other species can be grown in a nutrient medium while being stirred by a unique suspended magnet. Apparently the cells can obtain adequate nutrition and oxygen while being agitated in this manner and when division occurs, the daughter cells appear to separate, thereby resulting in a cell suspension rather than a tissue mass.

Material was presented which showed that both the growth and morphology of these cells are highly sensitive to adequate nutrition. For instance, cell growth was appreciably depressed and cell appearance was markedly modified by either amino acid or by vitamin deficiency.

It is of interest that only 27 discrete growth factors are required by cells in this system. A 28th factor is a complex one and is serum protein. The essential nutrient in the serum protein which is required has not yet been identified. Among the 27 growth factors are 13 amino acids, a carbohydrate source, six inorganic ions and only eight vitamins. With regard to the amino acids, it is of interest that the cell requires tyrosine as well as phenylalanine. Also glutamic acid is not adequate for proper cell growth; glutamine is also an essential nutrient.

It was pointed out by Dr. Eagle that in culture, the fundamental nutritional requirements of cancerous tumor cells are almost identical to those of normally growing cells. Therefore, it is difficult to differentiate a cancer cell from a normal cell on the basis of nutritional requirement. Despite the identity in biochemical needs for growth and the similar morphological appearance of these two different kinds of cells in culture, when these two types of cells are implanted into an intact host animal, the cells of cancer origin will then proceed to develop into a tumor whereas the normal cells will be reabsorbed. Apparently, therefore, despite the similarities in biochemical and nutritional requirement, the cancer cells persist in retaining their cancer integrity.

Dr. Brin said that upon rupturing the semipermeable cell membrane the protoplasmic constituents are released into the liquid medium, thereby making irreversible changes in the


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architectural relationship between the various essential intracellular elements. In addition, the chemical components of the cell are thereby diluted to concentrations below physiological. In a biological sense, the originally organized system has now been converted into one of chaos. To the chemist, however, certain advantages are incurred in this procedure. The primary one is that he can now, with the aid of appropriate techniques, isolate a specific reaction or series of reactions without interference from other systems. In addition, for the purpose of quantitative analysis of a chemical reaction all of the substrate reagent which the chemist adds to this broken cell system can now reach the enzyme site because the diffusion barrier of the former cell membrane has now been eliminated. It was emphasized that the technique of studying discrete enzyme systems has in the past contributed much to our knowledge of the biochemical functions of essential nutrients, and it is in this regard that the broken cell system has served as a fundamental and basic tool.

Dr. Brin suggested that when we speak of nutrition our thoughts are often directed to growth. Certain disciplines concern themselves more with the requirements for reproduction and lactation and others for the nutritional requirements for maintenance. By and large, however, it is growth which has most often been used in experimental work to evaluate unknown nutritional factors as well as known vitamins. It is apparent, however, that the complex process of optimum growth is but a reflection of optimum biochemical function and that gross outward manifestations of nutritional disorder must be preceded by some biochemical defect. The problem then arose as to whether a biochemical defect could be revealed before outward manifestations of nutritional deficiency, in an otherwise healthy animal.

Dr. Brin then presented some of his studies on the effects of nutritional deficiency in animals on certain of the blood enzymes. It was shown that the activity of the erythrocyte transketolase enzyme, which requires thiamine pyrophosphate as a co-factor, was markedly depressed in thiamine deficiency in as little as seven days after the growing animals were placed on the deficient diet. These same animals continued to grow and appear normal for approximately two weeks, despite the presence of the developing biochemical defect due to the absence of thiamine in the diet. It was apparent, therefore, that the biochemical defect was present before the normal rate of growth was affected. Additional studies were presented to show that within a certain range of thiamine concentration in the diet, the activity of the transketolase enzyme will reflect the dietary thiamine.

Data was also presented on studies with another vitamin of interest to the feed industry, namely, pyridoxine. It was shown that two serum transaminases, namely the aspartic transaminase and the alanine transaminase, each of which requires the presence of pyridoxal phosphate (vitamin $B_6$), were markedly depressed in rats after being on a pyridoxine deficient diet for from 2-3 weeks. For this vitamin, too, rats were placed on diets of increasing pyridoxine content for a period of 16 days followed by the assay of both serum transaminases. It was evident that within a certain range of concentration of dietary pyridoxine, the serum transaminases varied in activity (with enhanced activity at higher levels of pyridoxine).

It was shown, therefore, that at least for thiamine and pyridoxine a biochemical defect was demonstrated in blood before the deficiency was evident from the gross behavior of the rat. Furthermore, it was shown that the extent of the defect was dependent on the vitamin content of the diet.

It was suggested that further work in this direction on blood enzymes would firstly, permit one to evaluate subclinical deficiency states in otherwise normal appearing individuals on the one hand and secondly, permit one to develop newer and more functional biological assays for vitamins on the other.

## Honeymead Products Names Vice President

MANKATO, MINN.—Max Kantor has been appointed vice president and director of research for Honeymead Products Co., according to L. W. Andreas, president.

Mr. Kantor graduated from the University of Minnesota and was a post graduate fellow at Lehigh University. His previous connections have been: Director of research, Archer-Daniels-Midland Co.; vice president, Falk & Co.; technical director, vegetable oil division of Cargill, Inc., and most recently a private consultant to the chemical industry.

Mr. Andreas said, "It was with research in mind that we recently completed the installation of new laboratory facilities. Until this appointment our laboratory has functioned only as a control on the products manufactured. Upgrading of the basic meals and oils has expanded our production from two products in 1949 to 30 products in 1960—all made entirely from soybeans and flax.

"We are hopeful that additional uses and products through research will further expand, diversify and secure our operations," he said.


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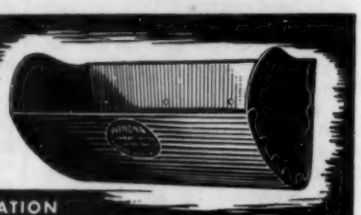

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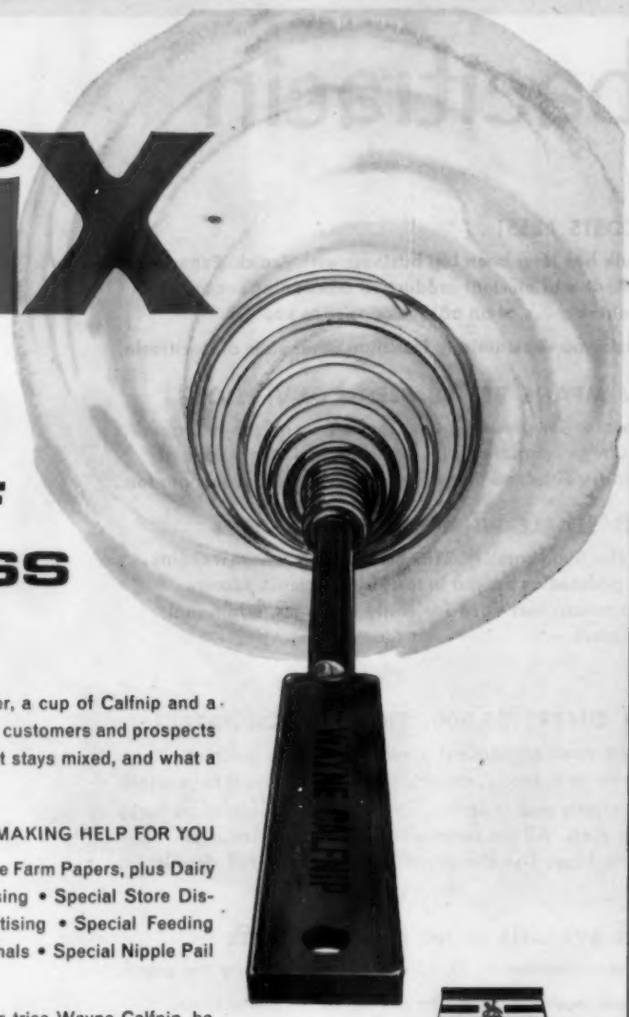


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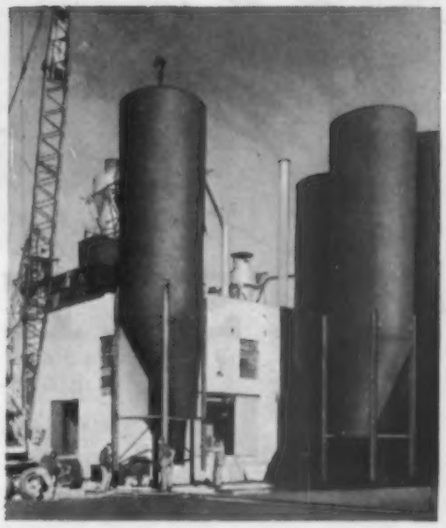

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## 4 Awards of $1,500 To Be Granted Home Agents by Pfizer

NEW YORK—Four $1,500 awards for home demonstration agents, one in each of the four extension service regions of the U.S., will be granted in 1960 by the agricultural division, Chas. Pfizer & Co., Inc.

Competition is open to all agents who have a minimum of five years' experience. Purpose of the awards is "to provide an opportunity for home demonstration agents who have developed outstanding programs and demonstrated community, state and national leadership, to receive additional professional training." Recipients are required to use the award fund for advanced study and/or travel.

Applicants can obtain full information on the award program from their state extension director. One individual is selected from each state and her application forwarded to a national selection committee. This group of state and federal extension leaders selects the four award winners. Final applications to the national selection committee must be submitted by the states before July 1, 1960.

This is the sixth consecutive year that Pfizer has sponsored these awards. The 1960 winners will receive their awards at the National Home Demonstration Agents' Assn. convention Nov. 6-9 in Chicago.

"With the rapid sociological and technological changes in agriculture," stated J. Jerome Thompson, Pfizer vice president and general manager of the agricultural division, "leadership in rural areas becomes most important. Our nation's home demonstration agents are key leaders in helping America's farm families adjust to a changing agriculture. We believe that assistance in helping them obtain advanced professional training will benefit the whole of agriculture."

The four agents who received awards in 1959 were: Mrs. Phyllis Anderson Goodey, Pocatello, Idaho; Mrs. Anna B. Brown, Ann Arbor, Mich.; Mrs. Elizabeth DeYoung, Fountain City, Tenn., and Esther R. Hart, Washington, Pa.

## Leases Elevator

MILWAUKEE, WIS.—Continental Grain Co. has signed a lease with the Chicago & North Western Railroad for the road's Milwaukee elevator facility, according to a joint announcement by C. J. Fitzpatrick, president of the North Western, and Michel Fribourg, president of Continental.

Continental expects to open a Milwaukee office in the near future which will be under the management of Walter Goldschmidt, assistant vice president. Mr. Goldschmidt will be transferred from Continental's Chicago office.

## *Manager Leaves*

SALT LAKE CITY, UTAH — During the 37th annual meeting of the Utah Poultry and Farmers Cooperative here, some 300 members heard H. M. Blackhurst resign as general manager of the co-op after 37 years with the organization.

In 1923 he was first manager of the American Fork branch, and then went to Provo and later to Ogden as branch manager before being promoted to manager of the feed department in 1927. He was named assistant manager of the co-op in 1935 and succeeded Clyde C. Edmonds as manager in 1955.

C. Kearns Ferre, assistant manager for five years, will succeed Mr. Blackhurst.

The district attorney was questioning a Kentucky colonel in court. Unable to shake his testimony, he tried sarcasm. "They call you colonel," he sneered. "In what regiment are you a colonel?"

"Well it's like this," drawled the colonel. "The 'colonel' in front of my name is like the 'honorable' in front of yours. It doesn't mean a thing."

◆ ◆ ◆

Sign in a restaurant window. "T-Bone—two cents." Then in fine print underneath: "With meat—$4."

◆ ◆ ◆

First voter: "I don't want to vote for any of the candidates. I don't know any of them."

Second voter: "I don't know what to do either. I know all of them."

◆ ◆ ◆

The little girl was telling her teacher about her baby teeth coming out. One tooth was loose and she had already lost three. She said, "Pretty soon I'll be running on the rim."

◆ ◆ ◆

With both motors of his plane hopelessly on fire, this pilot showed classic courage. As he donned a parachute, he shouted to the passengers: "Don't anybody panic. I'm going for help now."

◆ ◆ ◆

A famous matador was fighting in a Mexican border town. Among the spectators was an old cowhand who was seeing his first bull fight.

The fight had reached the stage where the matador, armed with only a cape, was taunting the bull, avoiding the animal's horns by fractions of an inch and flipping the cape aside as the bull charged past.

At last the old cowhand could stand it no longer. He arose and shouted: "Buddy, he ain't never gonna run into that sack unless you hold it still!"

◆ ◆ ◆

An ancient auto puffed and wheezed up to the toll gate.

"Fifty cents!" the attendant said.

"Sold," replied the driver.

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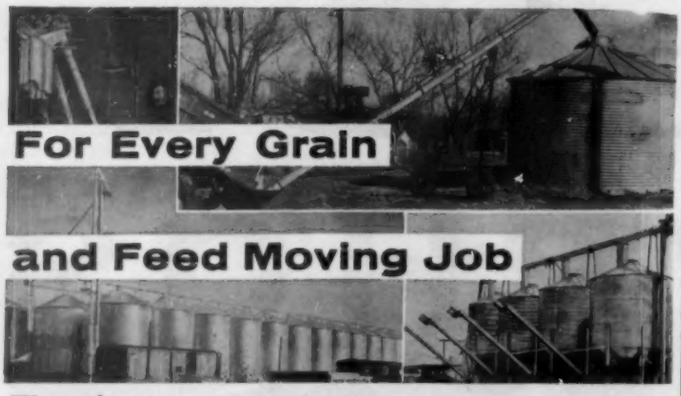


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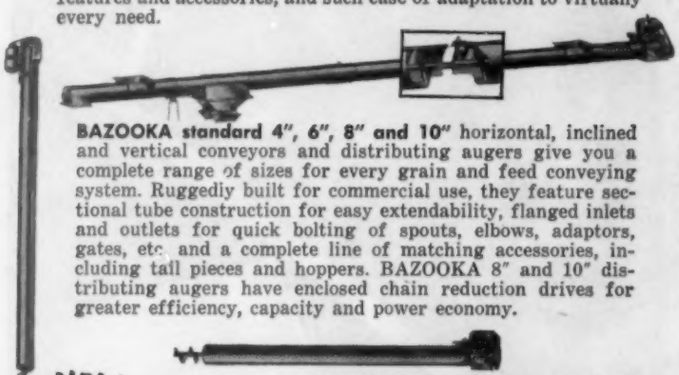

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## CONFERENCE

(Continued from page 52)

era at 8 weeks—revaccinate sows against cholera at same time). (4) Examination of breeding stock to eliminate sows with small number of pigs and runts and those not producing meat type hogs.

To accomplish the goal of improved hog production, Dr. Brooks said, the feed industry must:

(1) Continue to educate its salesmen in best nutritional and management policies.

(2) Stress the immediate need of a trained veterinarian in case of physical troubles; eliminate indiscriminate practice of medicinal dispensing by the salesmen; feed salesmen and veterinarians must work more closely together.

(3) Advise against cheap, second rate feeds when farmers request them in efforts to cut costs; show that savings come from better management, not cheap feeds.

(4) Work with individual producers to keep profits constant. "Remember the headaches in the broiler and turkey industries."

(5) Recognize the possibility of swine integration by meat packers who are being forced into it in order to keep their plants in full operation. With such integration, packers supply the breeding stock and their own feed, from self-owned mills. Encourage producers to maintain their independence.

(6) Develop and advertise a hog production educational campaign, working with the extension service and other agencies.

**SWINE FEEDING SUGGESTIONS**—Swine nutrition in the future will be approached on a life-cycle basis, said R. M. Godsey, and we will know more how to feed hogs in the different stages of development. Mr. Godsey, who is the swine specialist with the Virginia Extension Service, also pointed out that new programs such as meat certification, confinement rearing, multiple farrowing and early weaning are altering the nutritional requirement of hogs and that there is a continuing need for new nutritional information.

Meanwhile, certain recommendations, based on present knowledge and application, can be made. Among the feeding suggestions made by Mr. Godsey were these:

**Pre-gestation:** Gilts should be developed at a slow rate (1 lb. of gain daily) from 150 lb. up to near breeding, then placed on a full feed of a high energy ration the last three weeks before breeding. Present recommendations are that this be a 15 to 16% protein ration well fortified with vitamins and minerals.

**Gestation:** The recommendation is restricted energy feeding, allowing use of fibrous feeds like silage. Sows should be fed to gain ¾ to 1 lb. daily. Until more is known about protein and amino acid needs, use of 15 to 16% protein with concentrate feeds is suggested.

**Farrowing and lactation:** The practice of restricting feed during and immediately following farrowing is not necessary. Self-feeding concentrates throughout lactation will continue. Sows should receive 15 to 16% protein rations highly fortified with vitamins and containing a well balanced mineral. Three weeks is about as early as pigs will be weaned.

**Baby pigs:** High energy, high protein diets fortified with sweetening agents, antibiotics, vitamins and minerals should be fed. More careful attention should be given to the antibiotic in many starter rations. Too many pellets for baby pigs appear to be too hard.

**Growing-finishing:** Self-fed complete mixed rations are still the most profitable on most farms. Suggested are these things: Reducing protein as the requirement goes down, use of a good antibiotic in early growing period, more attention to mineral balance.

**FEEDING DAIRY CALVES AND HEIFERS**—Dr. Eric W. Swanson of the University of Tennessee noted that in dairy replacement rearing, high, uniform body weight gains, per se, are not as important as are the relative economies of alternate methods of rearing calves and heifers. Slow growth at one period may be compensated by rapid, efficient growth at a later period. There is no significant evidence, said Dr. Swanson, that final results at 24 to 30 months are influenced by variable growth conditions in the early months.

He outlined the principles of calf and heifer feeding and suggested a feeding program which can be followed. The recommendations will require 300 to 400 lb. of "milk" (which under careful management may be mostly unsalable colostrum-milk and replacer); 150 lb. of calf starter; 600 lb. of dairy concentrate; and 1 ton of hay the first year. For the second year, he said, about 3 tons of hay equivalent will be required. The feed cost of the program he described was estimated at $172.

A medium feeding level is best for dairy heifers, the Tennessee dairy scientist said. Overfeeding to cause fattening wastes feed, increases costs and may result in lowered milk yields. Serious underfeeding delays maturity, causes calving troubles and results in lowered milk yields. He mentioned work with identical twins in which the over-fed animals produced only 85% as much milk.

**PELLETS VS. MEAL VS. COARSE TEXTURED FEED FOR DAIRY CATTLE**—An all-meal calf starter may at times be dusty and unpalatable because of the variability in commercial feeds, said Dr. J. K. Loosli of Cornell University. Completely pelleted starters may be less readily consumed by calves than a


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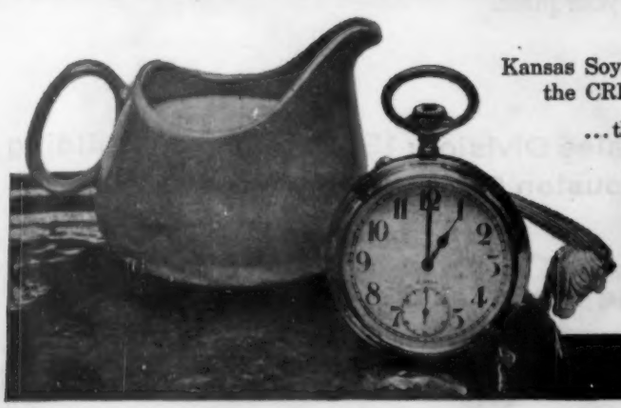

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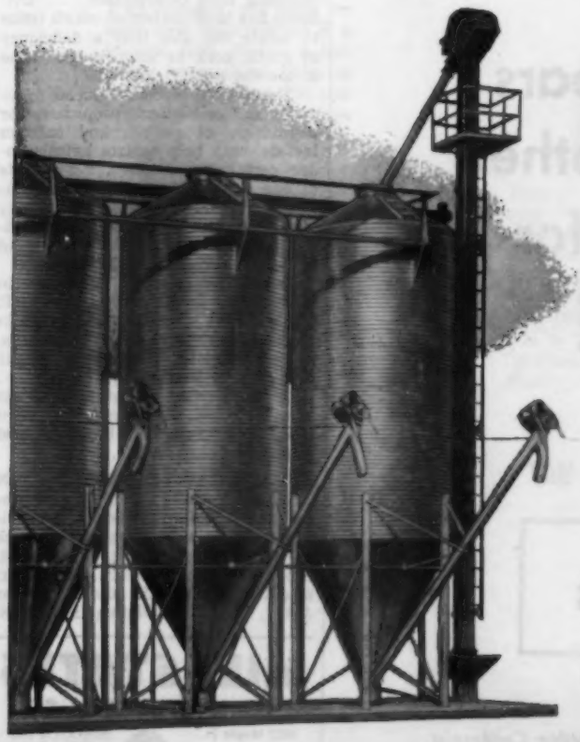

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meal if the pellets are too hard, but a mixture of pellets and coarse-textured ingredients avoids this problem.

In most published experiments, Dr. Loosli said, there have been no uniform differences either in amounts consumed or growth responses between pelleted starters, meal type starters and the pellet-meal mixtures; however, intake problems have arisen frequently enough to justify some pelleting and to make texture an important consideration.

Dr. Loosli went on to discuss the texture of dairy feeds as well as starters. He noted that expansion in use of milking parlors with automatic feeding and the need for rapid consumption of concentrates by high-producing cows has stimulated use of pelleted or partially pelleted concentrates. This can be expected to increase, he observed.

Dr. Loosli said it is important to recognize that in spite of the higher manufacturing cost, pelleted concentrates are no higher in feeding value for cows than the same mixtures unpelleted, and that the meals are fully as palatable, on the average. In fact, in some research, pelleting a dairy feed has lowered fat percentage and 4% milk production.

The Cornell scientist cited a number of studies of texture of dairy feeds, and noted that all results do not agree. Differences were not large, he said, and there was not much evidence that coarse textured feeds are better. Many farmers are convinced, however, that there is better intake with coarse feeds.

Dr. Loosli said that when all of the roughage is finely ground and pelleted, dairy cows react unfavorably. He mentioned studies indicating depressed fat content, and there may be poor appetite and bloat. Wafers gave results similar to long hay, but there was not enough advantage to pay for the costs of making the wafers. There may be situations in which transportation savings will more than pay for pelleting.

Research is needed to determine how fine roughage for cows can be ground without lowering fat test or depressing appetite and what proportion of total roughage can safely be finely ground. Also not yet studied is the question whether growing dairy heifers would show the same advantages for pelleted hay as beef cattle show.

**RECENT PROGRESS IN DAIRY CATTLE NUTRITION**—Dr. W. A. Hardison of the VPI dairy science department reviewed recent studies on a number of different aspects of the feeding of milk cows. Here are some of the things he brought out:

"Under most conditions, the nutritional factor which most often limits milk production is inadequate energy intake . . . High-forage and high-concentrate rations are best compared on an estimated net energy basis. Digestible energy and TDN over-evaluate forages relative to concentrates for milk production . . .

"Efficiency with which digestible energy or TDN is utilized for milk production may be related to the relative proportions of organic acids produced during rumen fermentation and to crude fiber content . . .

"Fat content is generally depressed by feeding restricted amounts of forage or feeding the forage finely ground. However, the type of concentrate and/or ratio of concentrate to hay may be more important in changing milk composition . . . Evidence has been presented which tends to refute the idea that a deficiency of acetic acid, as such, is the cause of low-fat milk . . .

"Feeding of special glucose precursors, like sodium propionate or a mixture of sodium and calcium lactate, may help control ketosis under certain conditions . . . Results of one field study suggest that continuous feeding of Aureomycin may stimulate milk production . . . Antibiotics seem to be of only limited value in prevention of bloat . . .

"Appetite-depressing factors in grass silage have been suggested. It appears that silage should be fed in conjunction with hay for best results. Some feel at least 10 lb. of hay per cow daily should always be fed . . .

"It remains to be determined just what pasture conditions are when feeding of grain can be considered profitable."

**BEEF CATTLE FEEDING IN THE FUTURE**—Probably for no other species of farm livestock is nutrition "know-how" undergoing as much change as it is for the ruminant, especially the fattening beef steer, said Dr. W. H. Hale of Chas. Pfizer & Co., Inc., Terre Haute, Ind. Nutri-


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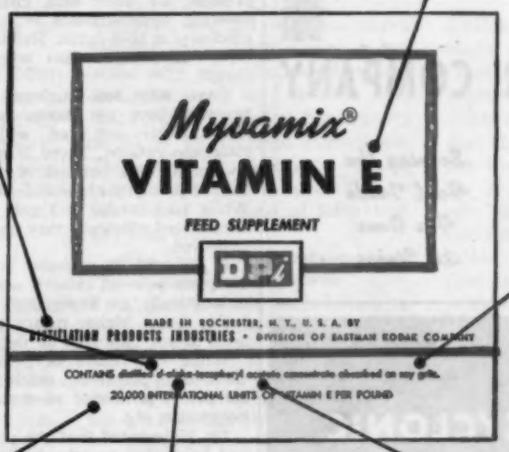
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ent requirements may be much more complex than previously thought; in fact, they may be more so than for monogastric animals. It may be, he said, that rumen microorganisms have been over-rated.

Dr. Hale limited his discussion primarily to two aspects of beef cattle feeding—pelleted rations and protein quality—but before getting into those subjects, he noted the increasing complexity of ruminant nutrition and the improvements made in performance.

"Dietary planning in the nutrition of the ruminant has been generally regarded as relatively simple," he noted. "Future dietary planning for the ruminant appears to be anything but simple. As performance is improved, more stress is placed upon the animal. Many nutrients and relationships between nutrients may become critical and require dietary adjustments not now believed necessary.

"The importance of rumen microorganisms is now recognized, but our knowledge in this area is very limited. In the future, ration alteration will be made to obtain more specific effects from the end products of rumen fermentation. Nearly all of our advances will revolve around the rumen microorganisms."

The pelleting of high-roughage, complete rations has shown great promise, Dr. Hale said, citing data showing improvements in gain and efficiency in beef cattle. Handling and other advantages also were mentioned.

Trials with low-roughage rations, however, have not shown the desirable results indicated with high-roughage rations. There is no ready answer for this, but lack of increased gain is probably reduced feed intake. While feed intake and gain are reduced, feed efficiency may be slightly improved.

In general, it appears that with complete pelleted rations, one cannot economically go above 30% concentrate. Going higher means performance is not improved or declines.

While the future of pelleted rations looks promising, much more information is needed on formulation, pellet size, etc.

Dr. Hale noted that the philosophy has been that protein quality is not important for the ruminant. It is generally believed that dietary protein quality requires little attention due to utilization of dietary nitrogen by rumen microorganisms. However, some old research had indicated differences among certain protein meals, and this appeared to be partly due to protein quality. More recent work also has provided new information on protein quality. Some workers found that type of dietary protein affected biological value with young growing lambs. Several reports with purified rations indicate improvement in nitrogen retention or growth by proper amino acid or protein supplementation.

Recently, Dr. Hale continued, Pfizer workers, using a high-corn practical ration, showed improved performance of fattening steers by lysine supplementation. With a low-protein (9.4%) ration, average daily gain was increased from 2.14 to 2.20 lb. by adding 10 gm. L-lysine HCl. With a high-protein (12.0%) ration, daily gain was increased from 2.23 to 2.51 lb. in the 176-day trial. Feed efficiency also was improved.

It appears that in the future, consideration must be given to protein quality in formulation of certain rations for ruminants, Dr. Hale said.

**FEED PREPARATION FOR FATTENING FEEDER LAMBS**—Dr. J. P. Fontenot reported on Virginia studies of feed preparation and lambs. One study covered grinding and pelleting part or all of the ration. In general, it was shown that pelleting of hay or the complete ration increased gain and feed efficiency. Pelleting the concentrate part of the ration did not improve gain but improved efficiency.

Trials also were conducted to study the relative effects of coarse grinding and fine grinding and pelleting the entire ration and to determine the optimum roughage to concentrate ratio.

Pelleting usually increased rate of gain. In one trial, the hay-to-concentrate ratios showing greatest daily gains were 40:60 and 25:75 with ground rations and 55:45 and 40:60 with pelleted rations. In a second trial, ratios showing greatest gains with pelleted rations were 40:60 and 25:75.

## GMI Names Regional Feed Sales Manager

MINNEAPOLIS — Appointment of Raymond J. Higgins as regional sales manager of the new southern region for the General Mills, Inc., feed division has been announced by E. E. Woolley, general manager of the division. Headquarters for the region are located in Hot Springs, Ark.

R. J. Higgins

Mr. Higgins joined the firm in 1942 and has been a district manager since 1951. He is chairman of the foreign trades development committee and a member of the executive and finance committees of the National Turkey Federation.

In addition to serving as a member of the board of directors of the Poultry and Egg National Board, he has also been on the National Broiler Council. Mr. Higgins is a member of the Arkansas Turkey Federation and the Arkansas Poultry Federation.

"With this change and others recently announced, the sales management of the feed division is being brought closer to the field," stated H. B. Herron, director of sales.

## Oregon Group Names 3 New District Chiefs

PORTLAND, ORE.—The full slate of district governors to serve on the board of governors of the Oregon Feed & Seed Dealers Assn. was completed last week with the naming of three new candidates.

Elected to head the southern Oregon district is Don Patterson, Grange Cooperative, Central Point, Ore. He succeeds Ray Mischke, Mid-Coast Distributors, Medford. The Metropolitan Portland Garden Supply district has reelected Ralph Guynes, Guynes Garden Center, Oregon City, to serve for another term and Lloyd Wright, Farmers Warehouse, Junction City, will continue as Eugene district governor.

Governors previously named were Glen Fravel, Jenks-White Seed Co., representing the Salem district; Stan Cellers, Buchanen Cellers Grain Co., McMinnville, representing the Washington County district and Floyd Packer, Corvallis Feed & Seed, representing the Albany district.

Governors will be formally installed at a regular board of governors meeting to be held March 17 during the annual association convention in the Portland Sheraton Hotel.

## Swine Study Grant

NEW YORK—Eperythronzoonosis, a protozoan disease of swine, is being studied under an American Cyanamid Co. grant at Kansas State University.

Dr. M. J. Twiehaus is in charge of the studies and is evaluating the use of Aureomycin chlortetracycline in the treatment and prevention of eperythronzoonosis. Prevention studies are being conducted by feeding varying levels of the antibiotic in swine rations. Swine infected with the disease are being treated with Aureomycin in the drinking water.

# IT TAKES MORE THAN ADDITIVES TO MAKE A GOOD FORMULA FEED

*First essentials of a good formula feed are the "building blocks" of nutrition and the knowledge and skill of manufacturers.*

No formula feed is a "good" one simply because it has modern feed additives in it. Good formula feeds were being made before these additives came along. Your feed manufacturer could, and did, offer well-balanced formula feeds designed to provide better health and growth for your livestock and poultry at low cost to you.

And these feeds had not been developed by chance. Skilled nutritionists spent years studying feed ingredients and nutritive requirements of livestock and poultry. The knowledge they gained led to the formulation of more efficient feeds year after year.

**Modern feeds scientifically balanced**

Feed companies have transformed the typical, crude feed supplement of the early 20's – such as the old "trinity mixture" for swine which consisted only of tankage, chopped alfalfa hay and linseed meal – into today's productive feed with its multitude of highly-refined ingredients.

Here's what they've done: They have taken your farm-grown grains – corn, oats, wheat, barley – which are the *basic energy ingredients* in formula feeds. They've selected quality proteins—soybean meal, fish meal, meat and bone scraps—to make sure that the essential amino acids for *body-building* are present.

They've blended in calcium and phosphorous for *bone-formation*, salt for *water balance*, trace minerals which are necessary elements in important *body compounds*. They've used natural ingredients like fish solubles, whey, dehydrated alfalfa and distillers by-products which are high in *unidentified growth factors*. They've sought new sources of lower-cost, chemically-produced vitamins A, D, E, K and B-complex which act as catalysts for life processes and are vital for *appetite, growth* and *normal development*.

If you could see the instructions which mixers follow in making a modern feed, you'd easily understand why it's called a "formula" feed. It's *made to a formula*, and that formula may often list as many as 15 to 20 different ingredients. The precise, *needed* amount of each ingredient has been carefully predetermined by repeated laboratory and field trials.

**Why your feed manufacturer uses drug additives**

Yes...good formula feeds have long been a boon to livestock and poultry growers. And you might buy one today that contained *none* of the modern "drug additives" and still see good results on your farm.

But you would be missing something, and risking something, too. And *your* feed manufacturer would be the first to tell you so. Your feed manufacturer has most likely anticipated your needs by incorporating additives in his feeds. He's looking out for your welfare and doesn't want you to run the risk of sudden devastating disease wiping out your profits.

Progressive feed manufacturers never stay satisfied with their formulas. They keep improving them. They investigate promising new additives. They choose those they find best.

Months before the news of *antibiotic* feeding reached the farm papers, many feed manufacturers had already discovered the astonishing growth and health benefits of this new additive *through their own tests*. They knew that *this* was an additive their customers couldn't afford to be without.

**Additives no substitute for sanitation**

Antibiotics and other drugs have made possible the popularly-called "medicated feeds" which aid in the prevention and control of so many costly livestock and poultry diseases. But these medicated feeds were never intended to act as a substitute for proper sanitation. Any grower who neglects sanitation and relies solely on a "medicated feed" may be risking disaster. Certainly, your own feed manufacturer or feed mixer would not recommend such a course.

**All must work together**

Today's progressive and successful livestock and poultry raisers practice good management and sanitation. They seek and obtain the finest of formula feeds. They know that good management, sanitation and feeding must work together to insure profitable results. American Cyanamid Company, Agricultural Division, New York 20, N. Y.

*The statements on this page express the sincere beliefs of American Cyanamid Company, producers of AUREOMYCIN® chlortetracycline, NITROPHENIDE-20, MEGASUL® nitrophenide and CYZINE® 2-acetylamino-5-nitrothiazole – all used in manufactured feeds.*

CYANAMID

*CYANAMID SERVES THE MAN WHO MAKES A BUSINESS OF AGRICULTURE*

This advertisement is another way Cyanamid helps you sell good formula feeds. It appears in the April issue of Farm Journal which reaches 3,100,000 farmers.

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## takes the waste out of phosphorus feeding

## ENDS THE NEED TO ADD UNNECESSARY MARGINS OF SAFETY!

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This chemically processed and purified dicalcium phosphate consistently rates high in biological availability. (Each pound of DYNAFOS delivers as much usable phosphorus as 2 to 9 pounds of unprocessed, raw phosphates.) You get top feed performance without having to add phosphorus for unnecessary margins of safety. That's why International's Dynamic DYNAFOS takes the waste out of phosphorus feeding . . . stretches your phosphorus dollar.

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## Virginia Scientist Comments on Texture Of Dairy Rations

BLACKSBURG, VA.—With dairy feeds being flaked, rolled, crimped and pelleted, Dr. A. W. Hardison, dairy scientist at Virginia Polytechnic Institute, is studying the influence processing may have on the nutritive qualities of feed.

Dr. Hardison reports that digestive studies with ground and crimped oats have given conflicting results: In one study, using Holstein steers, crimped oats were somewhat more digestible, while in another test, using both steers and lactating cows, the reverse was true.

Studies with ground and coarse-textured grain mixtures have also given varying results, he said.

In New York tests, no difference in digestibility was noted when a concentrate mixture containing rolled corn, crimped oats and pea-size soybean oil meal was compared with the same mixture after it had been ground through an 8/65-in. screen.

The mixtures, Dr. Hardison said, were also equal with respect to milk production, and, although the cows ate the coarse-textured mixture slightly more rapidly than the finely-ground one, the scientists concluded there was no real difference in palatability between the two.

**New Hampshire Tests**

In New Hampshire, tests showed a decided advantage in digestibility for a grain mixture that was ground through a 3/32-in. screen compared with the same mixture in coarse form.

Pelleted concentrates were also more digestible than coarse-textured mixtures.

When the fine and coarse-textured mixtures were tested, no differences were noted in palatability, or milk or fat production.

In Massachusetts, cows fed a typical 16% protein mash concentrate produced significantly more butterfat, had higher butterfat tests and produced 4% more fat-corrected milk than the cows fed the same concentrate as ½ in. pellets.

Most of the cows ate the two concentrates with equal relish, but a few animals refused the pellets.

**Colorado Study**

In a Colorado study, differences in milk production between cows fed a coarsely-ground grain mix and the same concentrate as ⅜ in. pellets were not significant. However, as in the Massachusetts test, feeding pelleted grain did result in a lower fat test. In the Colorado work, the cows were milked in a milking parlor and all of the animals were able to finish eating the allotted grain in either form during an average of 7 min. spent in the parlor.

Dr. Hardison says the results of the various studies indicate no difference in acceptability, milk production or butterfat tests between fine and coarse-textured dairy feeds.

"Under usual feeding conditions," he continued, "paying a high price for the coarse-textured grain mixtures is not justified. This is especially true since the 'fine' feeds seem to be more digestible than the coarse and pelleted feeds."

The data also indicate that feeding complete pelleted concentrates may result in lower butterfat tests, and it remains to be determined just how serious this problem really is, he said.

## *Appointed Manager*

HERMISTON, ORE.—Glenn Larson, who has been with Pendleton (Ore.) Grain Growers, Inc., since 1951, has been named operating manager of Federated Livestock Corp., according to James Hill, Jr., PGG general manager.

Federated Livestock is a subsidiary of PGG designed as a self-help organization in the utilization of Umatilla County feed grains in the feeding of cattle, hogs and turkeys. The operation is located near Hermiston.

Mr. Larson attended Nebraska State Teachers College and was a district sales representative for Ralston Purina Co. for five years.


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Within 60 days, this new 50,000 bu. Post Grain Co. elevator was completed after Stump Construction Co., Miller, Nebraska, was awarded the contract. It has two main Columbian bolted steel 21' x 56' tanks; four 12' x 40' Columbian blending-classifying tanks and a 12' x 17' x 32' obround headhouse. Grain is received in pit under concrete drive-through; leg elevates grain at rate of 3000 bu. per hour, to head house, for gravity operation.

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**WALL FILE**—John Nie, who heads the Nie Feed & Grain Co., Mechanicsville, Iowa, looks over "wall file" of cards which list feeds and ingredients handled by the firm and the formula which each customer usually buys for his livestock. The cards are hung in alphabetical order for quick reference.

# Pellet 'Deal' and Customer Card Are Ideas Offered by Firm in Iowa

By AL P. NELSON
Feedstuffs Special Writer

The "package deal" merchandising technique which works well in many retail and wholesale fields is being used effectively by the Nie Feed & Grain Co., Mechanicsville, Iowa.

About a year ago, the firm, headed by John Nie, made some mill improvements costing $30,000, including the installation of a California pellet mill with a capacity of 3 tons an hour. Mr. Nie then lumped his charges for grinding, mixing and pelleting into one fee of $8 ton—and this has appealed to many customers. Mr. Nie reports that many hog producers like to feed pellets because "they work down in the feeders very well and do not bridge over."

The farmer who wants his own formula made can have it done at the Nie mill. In addition, the farmer can buy Blue Ribbon feeds produced by the company, which makes starter pig pellets, a 16% grower feed for pigs weighing up to 75 lb. and a No. 2 hog feed for pigs weighing 75 lb. and up. Also, the firm sells some branded feeds of other manufacturers.

Management of this feed company has worked out a customer card which farmers seem to like. Mr. Nie explained that the card lists the various feeds made by Nie Feed & Grain, as well as other feeds handled and ingredients. On this card is written the formula which the farmer usually gets for his hogs, beef or dairy cattle or poultry. It shows the ingredients in pounds.

A delivery dateline at the bottom of the 6 by 9-in. colored card shows the dates on which feed has been delivered.

These customer cards are hung alphabetically on hooks on a wall near the order desk in full view of customers. Many cards—2 to 25 hung on each of the 26 hooks, one for each letter of the alphabet—make an impressive display. Farmers who see these customer cards can't help but think that many feeders have confidence in Nie feeds and services, it was pointed out.

"It is very handy to have these

1959

NAME_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

KIND OF FEED HOG_ _ _ _ _ CATTLE_ _ _ _ _ POULTRY_ _ _ _

AMOUNT OF CORN _ _ _ _ OATS_ _ _ _ _

32% POULTRY CONCENTRATE_ _ _ _ _ _ _ _ lbs.
40% NIE'S BLUE RIBBON_ _ _ _ _ _ _ _ _ lbs.
30% NIE'S BLUE RIBBON_ _ _ _ _ _ _ _ _ lbs.
45% BC CONCENTRATE _ _ _ _ _ _ _ _ _ _ lbs.
36% DAIRY CONCENTRATE_ _ _ _ _ _ _ _ _ lbs.
SOYBEAN OIL MEAL _ _ _ _ _ _ _ _ _ _ _ lbs.
BUTTERMILK _ _ _ _ _ _ _ _ _ _ _ _ _ _ lbs.
TANKAGE_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ lbs.
MOLASSES _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ lbs.
MEAT SCRAPS_ _ _ _ _ _ _ _ _ _ _ _ _ _ lbs.
SWINE PREMIX _ _ _ _ _ _ _ _ _ _ _ _ _ lbs.
ALFALFA MEAL _ _ _ _ _ _ _ _ _ _ _ _ _ lbs.
MIDDS_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ lbs.
SALT _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ lbs.
MINERAL_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ lbs.
CALCIUM_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ lbs.
ARSONIC_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ lbs.
ANTIBIOTIC _ _ _ _ _ _ _ _ _ _ _ _ _ _ lbs.
DYNAFAC_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ lbs.
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ lbs.
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ lbs.
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ lbs.

SACKED_ _ _ _ BULK _ _ _ _ _ PELLETS_ _ _

DATE DELIVERED_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

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**CUSTOMER CARD**—This is a copy of the customer card on which John Nie lists feeds made by his firm, as well as other feeds handled and ingredients. The formula which the customer usually has made up is listed on the card. Dates of delivery are entered at the bottom.

cards on the wall rather than in a filing cabinet," reports Mr. Nie. "If a farmer comes to the desk or phones in an order, we can get his card quickly without taking too many steps. Then, too, there is advertising value in having the cards hung on the wall for all persons to see. It certainly gives the true impression of our business—that we are serving many, many feeders."

### Grain Bank

Mr. Nie says he believes he was one of the first feed men in Iowa to start the grain bank plan. About 19 years ago he told a farmer to haul in some grain and leave it at the Nie mill and then order grinds on it. The farmer liked the idea and soon word spread about the Nie grain bank. Since that time many farmers have made use of this service.

Customers are invited to come into the Nie mill and see how their grain is processed, and many of them do. "We want them to see what goes into their feeds," says Mr. Nie. "Farmers are interested in knowing what improvements a mill has made to serve them. We always take time to explain to customers how we handle the processing of feeds—and many of them ask us to do so. We feel this is excellent customer relations for us. The more the farmer knows about us and how we process his feeds, the better it is for him and for us."

Mr. Nie and his men are proud of the fact that Mechanicsville is located in Cedar County which usually each year is the highest pork producing county in the world. And this pride is demonstrated by Mr. Nie, who at a cost of about $50, bought some special automobile and truck stickers which advertise Mechanicsville as the "Pork Center of the World." And the sticker also publicizes Nie Feed & Grain Co. Quite a few farmers and truckers display these 2-ft.-long bright stickers on their trucks and automobiles. Employees of the Nie firm also use them.

### Mill Equipment

Equipment in the mill includes a 40-h.p. attrition mill, a 1-ton Prater mixer, a Suttle weigh buggy and a 1-ton Kelly Duplex mixer with conveyor, a Union Special bag closer and the California pellet mill previously mentioned. The firm also has a bulk truck, which holds up to 4 tons of feed.

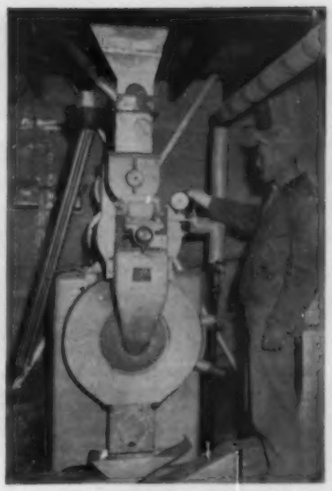
Pellets constitute about 35% of the mill's production. Bulk production is about 60%. A discount of $5 ton is offered to bulk feed users. For hauling grain, either for immediate use or for grain bank storage, the charge is 3¢ bu. Total grain bank storage is 20,000 bu.

The premix used in the making of Blue Ribbon feeds is from Spencer Kellogg & Sons, Inc.

Mr. Nie reports that the firm handles credit on an individual basis. A 2% discount on feed is given if a bill is paid within 30 days. This firm lost only $500 on bad accounts from 1936 through 1952, and the present rate of loss is also low.

"We've been in business here for many years," Mr. Nie notes, "and we know most of the farmers, and soon

**ONE CHARGE—Nie Feed & Grain Co. charges $8 ton for grinding, mixing and pelleting. This "package deal" has appealed to many customers. Here an employee of the firm draws off ingredients from overhead bins.**



**PELLET MILL—Employee of Nie Feed & Grain Co. is shown operating California pellet mill which was installed by the firm about a year ago.**

hear about the new ones. We check carefully into each man's credit rating, and we know the paying habits of just about every one of our customers. Working on this individual basis we know that the time to put collection pressure on delinquent accounts may vary quite a bit."

Mr. Nie and his manager, William Getty, visit farmers in the field whenever they have the opportunity. However, a great deal of their "feeder education" is carried out right in the roomy, friendly Nie office where it is not unusual to see five or six farmers talking to Mr. Nie or Mr. Getty.

Nie Feed & Grain also stores grain for the government. About a year ago a $30,000 building was erected for this purpose. The structure is equipped with aeration devices.

## *Cull Potato Meal Fed In Colorado Lamb Tests*

CENTER, COLO.—During the annual Sheep and Wool School and Lamb Feeders Day here, lamb feeders were told they may substitute meal made from cull potatoes for barley in a fattening ration.

In tests conducted at the San Luis Valley Branch Experiment Station, cull potatoes were dried and ground into meal and then substituted for barley in a pelleted ration. Lambs receiving 40% barley and 60% alfalfa hay gained .51 lb. per day, and those that received potato meal in place of barley made .48 lb. per day gain. Feed consumption was about equal for both lots, which also were fed 2 mg. stilbestrol.

In another study, Dr. Lamar Esplin, Colorado State University Experiment Station, and Verne Cooper, superintendent of the San Luis Valley station, reported gains of lambs pastured on field peas were increased 65% by implanting with stilbestrol. First-year tests showed lambs implanted with 3 mg. stilbestrol made an average gain of .56 lb. per day, while lambs without the implant gained .34 lb. per day.

## To Tour Europe

IOWA CITY, IOWA—C. Urban Kelly, chairman of the board of Protein Blenders, Inc., plans to leave for Europe March 30 to make a survey of trade possibilities and livestock management practices.

He said Protein Blenders and its subsidiary firms are interested in enlarging their market in the British Isles and the continent. He will study the production methods, feeding and livestock breeding methods in Great Britain, the Netherlands, Germany, Switzerland, Italy and France, returning to the U.S. in May.

He has been requested to make a report to the Senate Agriculture Committee on his findings.

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where mobility is desired. 13, 15, 17 and 19 ft. lengths. 80 f.p.m. belt speed. One man operation.

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To speed flow of materials through plant. Built for hard use in sizes 10 to 35 ft.

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In both straight and nosed over units. Sections can be added or subtracted for desired length.

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**MOLASSES-RICH**—made from highly nutritious ingredients: Feeding Corn Sugar Molasses (Hydrol), Feeding Cane Molasses (Blackstrap), Corn Oil Meal, and Corn Gluten Meal. **BONE-DRY**—flows freely in hottest or coldest weather. Packed in 50-lb. moisture-resistant bags. SUGAR-SWEET—makes any animal ration more palatable; steps up feed and water consumption for bigger gains.

**DOUBLY-USEFUL**—highly nutritious in rations for all farm animals; scientifically formulated to preserve the quality of silage.

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**PRODUCTION SCHOOL—Two members of the Production School advisory group show examples of interest in the school from other countries. Robert C. Wornick (left), Chas. Pfizer & Co., Inc., Terre Haute, Ind., and Eric Carlson, Ralston Purina Co., St. Louis, are pictured with a display at the Midwest Feed Manufacturers Assn. convention in Kansas City.**

## New Firm to Supply Bulk Handling Devices

MINNEAPOLIS—The formation of Flo-Tronics, Inc., a Minneapolis corporation which will supply automated bulk handling systems for the nation's food, chemical and process industries, has been announced by William P. Edmunds, president of the new firm.

W. P. Edmunds

In such systems, bulk materials like flour, grains and chemicals are transported through ducts by a moving airstream. Systems produced by the new company will incorporate electronic controls, in many applications capable of providing completely automatic operations, Mr. Edmunds said.

Officers of the company include Mr. Edmunds, William K. Marrinan, vice president and operations manager, and Richard D. Schneider, treasurer. Mr. Edmunds was general manager of the Fluidizer division of Superior Separator Co., Hopkins, prior to formation of the new firm. Mr. Marrinan was operations manager of the industrial division of the Bureau of Engraving, Inc., also of Minneapolis, and Mr. Schneider was formerly in planning and market research with the Fluidizer division.

Initial capital has been raised for the new firm from 12 incorporators, all Minneapolis business and professional men. In addition to the company officers, they are: William Peters, Minneapolis engineering executive; Wesley J. Anderson, Allison-Williams Co., investment bankers; Drs. Richard W. Giere and Joseph C. Giere, Minneapolis physicians; Newell Gaasedelen, securities analyst; Francis Gaasedelen, Minneapolis attorney; George H. Halvorson, Minneapolis businessman; Frank A. Warner, Lee Higginson Corp., investment banking firm, and E. B. Eliason, Jr., general agent, Crown Life Insurance Co.

The board of directors of the new company will consist of Mr. Edmunds and Mr. Marrinan, together with Newell Gaasedelen, who will be chairman of the board. Mr. Gaasedelen is an investment analyst with the Minneapolis Teachers Retirement Fund Assn.

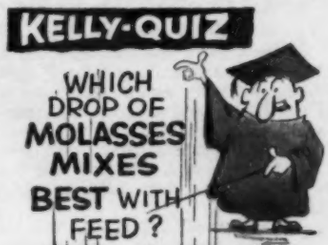
## Sterwin Chemicals Holds Sales Meeting

SKY TOP, PA.—The national sales organization of Sterwin Chemicals Inc., including its affiliated companies, Dorn & Mitchell Laboratories and Delaware Poultry Laboratories, recently held its annual sales conference at Sky Top Lodge here.

The immediate and future prospects in the animal health field were the principal themes laid down by Robert S. Whiteside, president. Among the subjects discussed were the present status of the feed and poultry markets, the effects on the feed and poultry industries of the food additives law and the expanded research and development program being conducted for Sterwin Chemicals at the Sterling-Winthrop Research Institute.

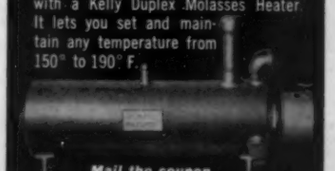
There also were discussions of vaccines and antibiotic products and seminars on sales pointers. In addition to Mr. Whiteside, discussion leaders were: William X. Clark, vice president in charge of sales; Dr. R. C. Sherwood, vice president and technical director; Ira Dorn, president of Dorn & Mitchell Laboratories; Dr. H. Lasher, director of laboratories, Delaware Poultry Laboratories; Dr. F. Coulston, director of experimental pathology and toxicology, Sterling-Winthrop Research Institute; Dr. J. K. Krum, Sterwin associate technical director; L. R. Patton, Sterwin assistant sales manager and others.

KELLY-QUIZ




...RIGHT—
... the molasses heated with a thermostatically controlled
KELLY DUPLEX
MOLASSES HEATER

Molasses of the proper consistency means thorough, even integration—a better sweet feed product—and bigger profits. And that's just what you get with a Kelly Duplex Molasses Heater. It lets you set and maintain any temperature from 150° to 190° F.



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# Progressive feedmen are increasing sales by backing fully-equipped "ready-to-go" poultry house projects

## And . . more and more, these same men are specifying Big Dutchman automatic poultry equipment . . .

## THE REASONS WHY ARE CLEAR . . .

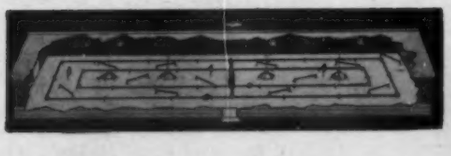
**Big Dutchman "packages" HIGHER PROFIT SYSTEMS for every need —**

### FOR LAYERS

CUBIC AIR ROOSTS — increase the bird capacity of existing buildings 3-fold. Create natural living area for birds; allow them to produce at top capacities.

PART LITTER — PART SLATTED FLOOR — slats carry feeding and watering equipment, litter portion provides dusting area. Pit cleaner removes droppings.

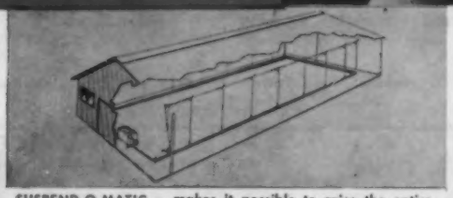
### FOR BROILERS



FEEDING, WATERING, FEED CLEANING, BROODING — the entire day-by-day routine of bird care performed efficiently — automatically! Dramatic savings in labor; healthier flocks.

### FOR TURKEYS

OVERHEAD — a system built solely for turkeys with all the benefits of automation: labor savings, time savings, no heavy feed handling, clockwork dependability. All feeding equipment overhead.



SUSPEND-O-MATIC — makes it possible to raise the entire feeding and watering system off the floor as the birds grow, and when the house has to be cleaned.

Big Dutchman has long been recognized as the "one dependable source" for poultry house automation.

LEADERSHIP THROUGH RESEARCH — A product development staff researches, designs, engineers and farm-tests every Big Dutchman product before it is marketed. Special "in operation" experimental poultry buildings are maintained on the plant grounds for just this purpose.

"EFFICIENCY ENGINEERED" POULTRY HOUSE PLANNING — Efficient poultry house automation layouts are available from all Big Dutchman Sales Engineers and direct factory branches.

ASSISTANCE FROM THE START — Demonstration, explanation, helpful hints, and installation assistance help orient the customer, enable him to get the operation underway much faster.

EASE OF OWNERSHIP . . . THROUGH SOUND FINANCING — Big Dutchman maintains an exclusive finance program. Full details are available upon request.

GOOD SERVICE . . . NEARBY WHEN IT'S NEEDED — 26 direct factory branches throughout the U.S., Canada and Europe mean Big Dutchman is always close by. Complete stocks of parts and equipment, fast delivery, sizeable savings in freight personal assistance are all part of this program for better service.

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2. **Efficient, HIGHER PROFIT SYSTEMS tailored to the grower's needs.**
3. **Faster acceptance of the entire poultry house project.**
4. **No equipment responsibilities.**
5. **Experienced assistance in planning the overall project.**

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- Bran and Shorts
- Tankage
- Meat Scraps
- Other Feed Ingredients
- Grain—oats, corn, wheat, rye, barley, soybeans

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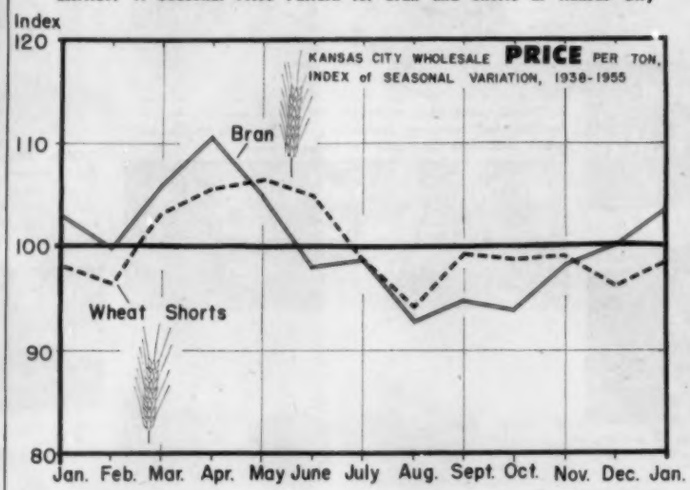


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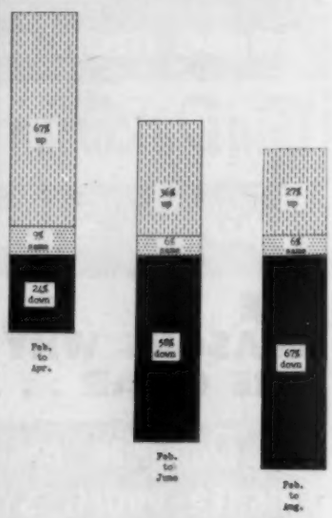


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**PACO** is the superior Molasses Distillers Dried Solubles — nutritionally sound, palatable to stock and just about the *best pellet binder* you can buy! Paco is the ideal fortifier to add to your feed formula, provides balanced protein, B-vitamins, essential minerals plus unidentified growth factors. Compare 'em all—you'll choose Paco!

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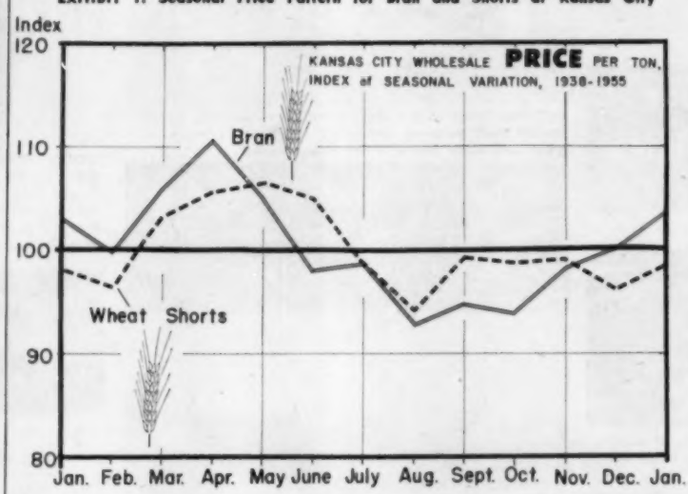


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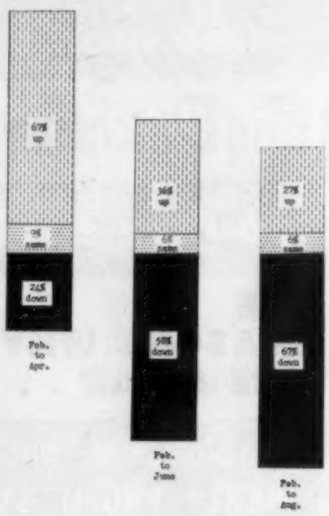


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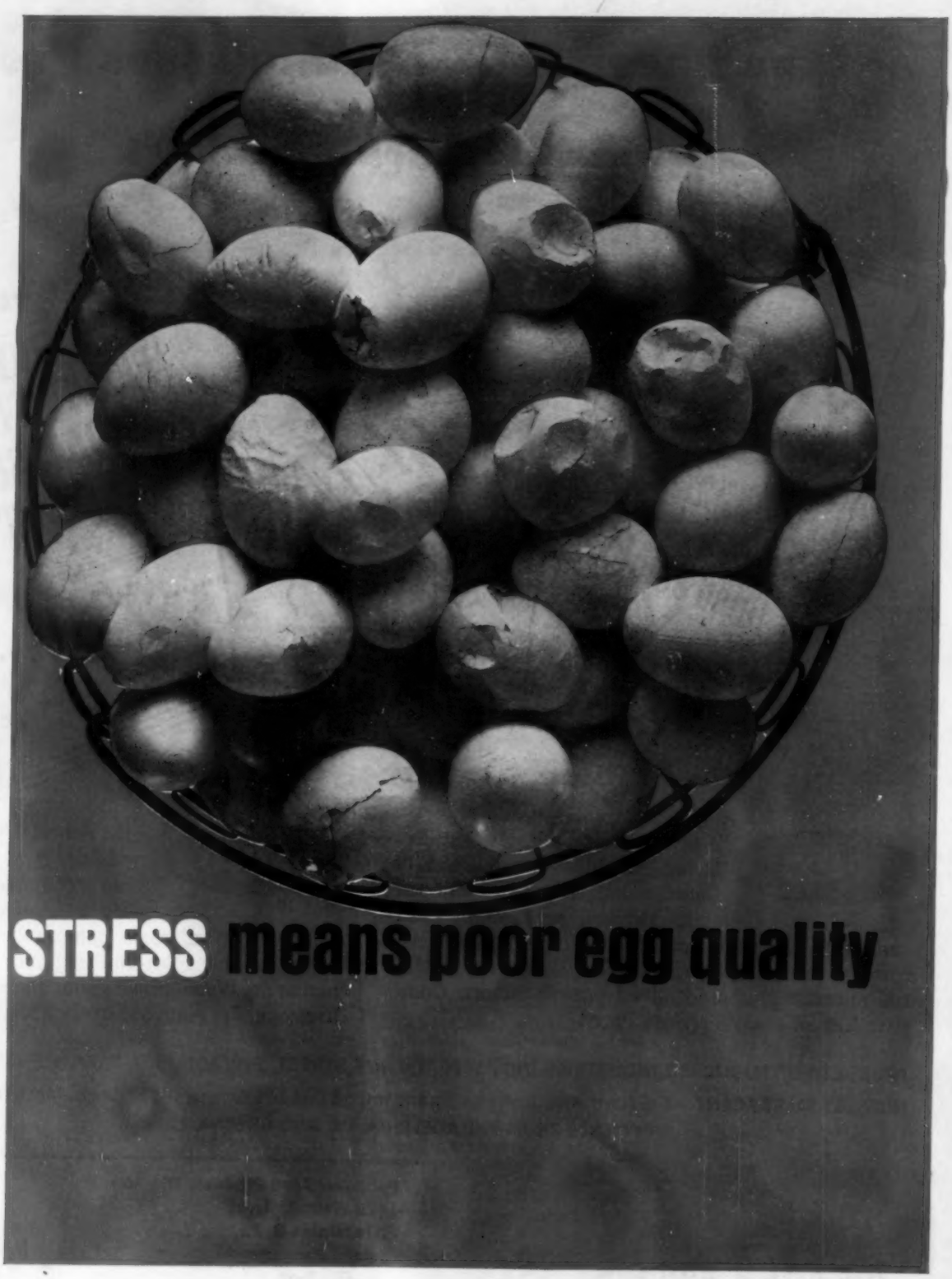
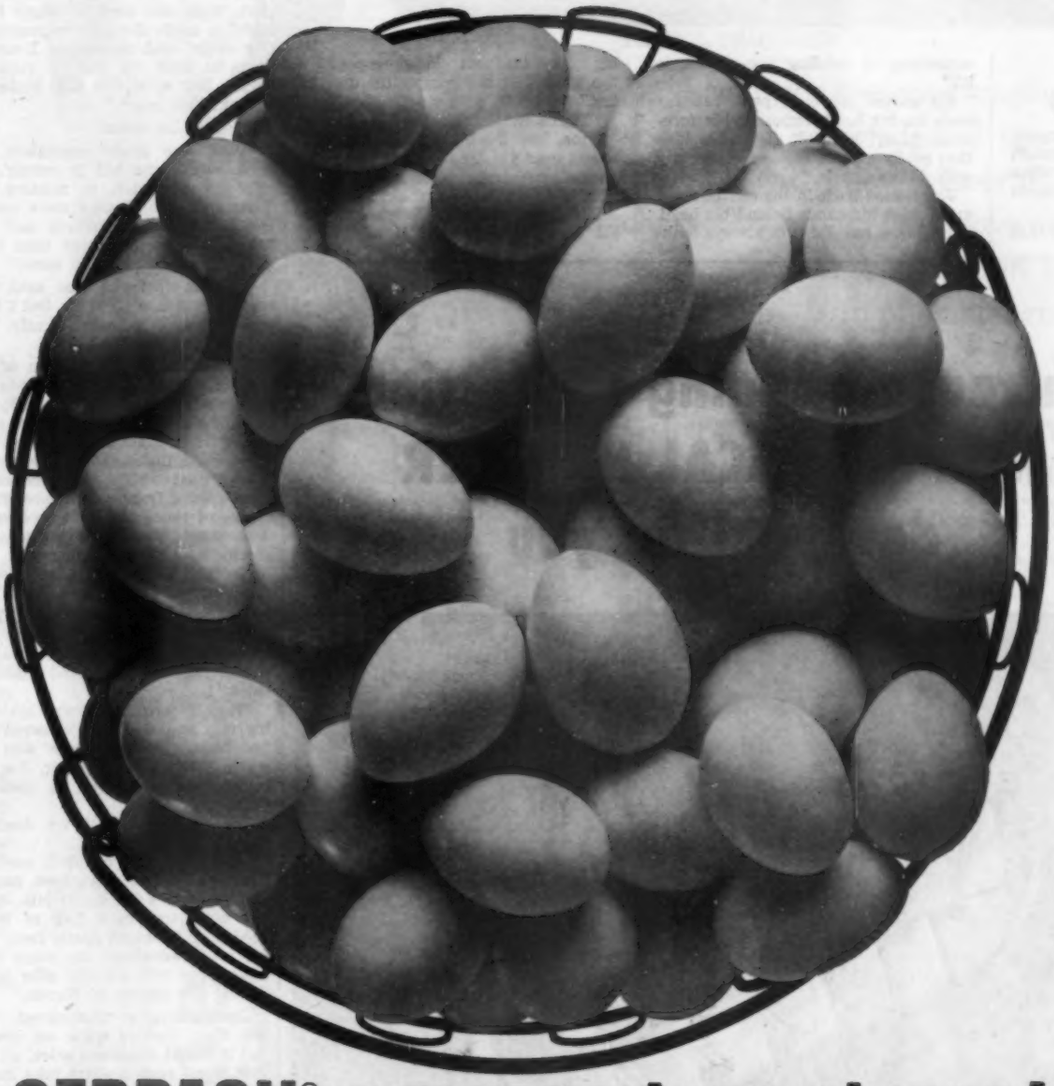
COMPANY_____

ADDRESS_____

CITY_____ ZONE_____ STATE_____


STRESS means poor egg quality



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CIBA

# JOE BROOKS

BY AL P. NELSON

## Sales Sometimes Can Be Stimulated

Stocky, freckle-faced Ed Eggers, manager of Joe's Endeavor branch mill and store, came into the office late that winter afternoon, a grin on his face.

"Hi, Ed," said Joe. "I can see that something is tickling you. What is it?"

Ed shoved his ear-lapped cap far back on his head, exposing his forehead. "Joe," he said, "I got an idea that really excited me—or rather my wife Millie got it."

Joe leaned back in his swivel chair and folded his hands behind his head. "You know me, Ed, I'm always looking for business ideas—especially the kind that my competitor doesn't try."

"That's it," interjected Ed Eggers. "I, too, like the ideas my competitor hasn't used yet. That makes him busy chasin' me, instead of me chasin' him."

The two feed men laughed. Then Ed said, "Joe, you know Millie and me have four kids. The last one is only two months old. Well, now that we've had so many kids, Millie kinda has the child raisin' routine down pat."

Joe seemed puzzled. What did the raising of children have to do with the feed business? But Joe had patience. He knew it sometimes took a lot of talking to bring out an idea.

"When our other kids fussed with their nursin'," Ed explained, "Millie used to worry. She's one that believes in breast feedin', you see. Says mother's milk is best for the kids and all that. Well, she used to waste hours tryin' to make the kids eat enough at one sittin,' and sometimes I used to have to wait for her to cook my meals. But with this kid, Millie has learned her lesson."

"How?" Joe asked.

"Well, she reads magazines and books while the kid is nursin'. She gets so interested in reading that sometimes she forgets she's nursing the baby. He eats plenty and falls asleep, and at the same time Millie gets lots of her reading done."

"That's efficient," Joe said. "I'd recommend that to Mary, but I think we don't want a larger family. Twin boys are enough for us."

Ed nodded at the wisdom of that remark. "Now Millie was reading an article which said that the publishers of a popular book hid a small envelope in the 100,000th copy of the book. The person finding that book and slip was entitled to $100. And I heard that people were frantically searching for copies of those books in book stores, department store book sections, and so forth, trying to find the right book. The stunt was advertised beforehand, of course."

Joe grinned. "That's what I like about merchandising," he said. "Somebody gets a new idea—and then, more interest and additional sales."

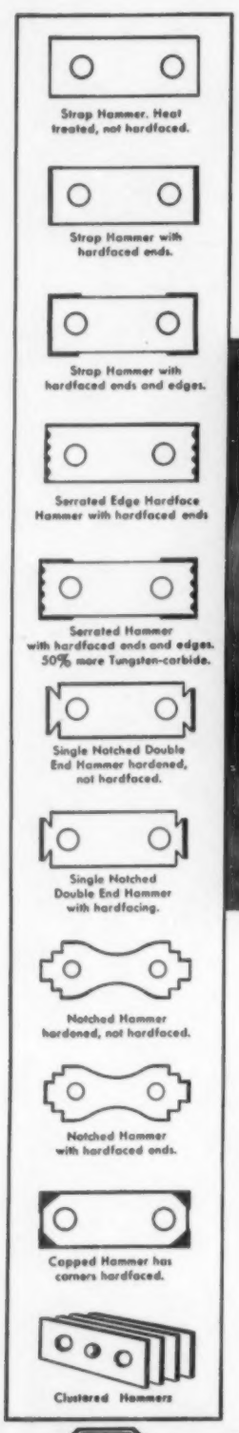
"Right," agreed Ed, now taking off his cap and wiping the sweat from his brow, for the room was very warm. "I got to thinking, Joe, that maybe we could use an idea like that."

Joe frowned. "But we don't sell books."

"No, but, Joe, couldn't we put a note in a bag of dairy feed, entitling the buyer to a five dollar bill—a similar note, too, in a bag of poultry feed, hog feed and cattle feed. Then we could advertise the event in the newspaper and say the offer is good during the month of March."

Joe whistled in amazement. "I see, Ed. Say, that is quite an idea. I'll bet it would stimulate sales, all right. But won't such a stunt take business from you down at Endeavor? Folks will all want to come up here and buy their bag feed since the prizes are being offered here."

Ed blinked. "Here," he exclaimed. "Why, Joe, why not offer the prizes at both places? That would be $20 here and $20 down at the Endeavor branch. That ought to be just about the cheapest advertising we ever did. Farmers through the whole trade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Single Notched Double End Hammer with hardfacing.
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Notched Hammer with hardfaced ends.
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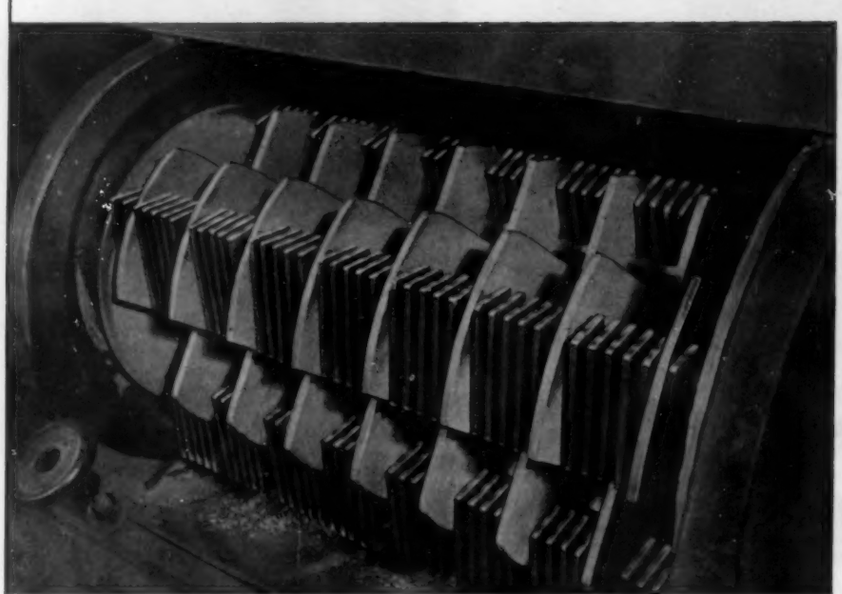

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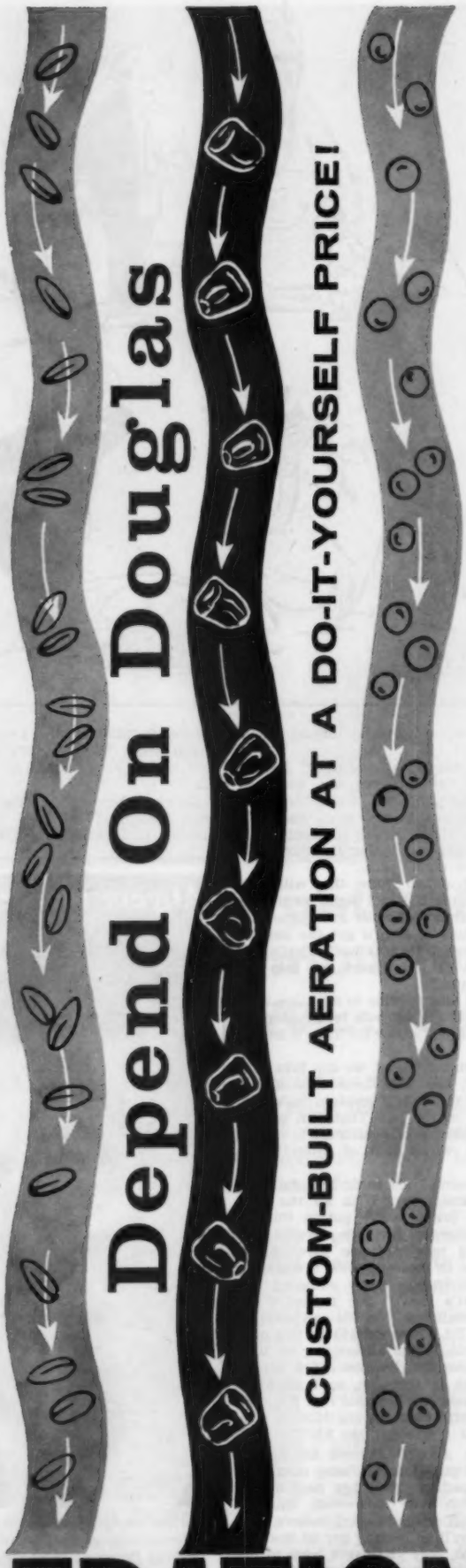

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SELLIN' SAM By Jim Zilverberg

area are going to be talking about it."

"I certainly can see that," Joe replied. "And farmers are going to walk through our warehouses inspecting our bagged stock and feeling the bags, hoping to locate that slip of paper entitling the purchaser to a five dollar prize."

Ed chuckled. "Sure, they will. And we can put a lot of signs on the inside warehouse walls and some displays, too, so they'll get the idea to buy other things as well. That's one way to get customers out into the warehouse."

"The idea appeals to me," Joe said, "but how are my bulk feed customers going to feel about it? They'll be left out."

Ed smiled. "Why, we can take care of that, Joe. Tell them we'll offer a special promotion stunt to bulk feed buyers in the fall. Then it'll be fair to all classes of customers."

"But what kind of stunt?" Joe asked.

"I dunno," Ed said, "but fall is a long time away. With all the fast-geared brains we've got in this organization and the high-powered sales training meetings, we sure oughta be able to come up with a workable idea or two in every category."

"That's right," Joe replied. "It'll be a challenge, but we can meet it. Okay, Ed, I'll spend $40 on this deal, plus doing some advertising on it. I was going to give you a $10 bill for bringing in the idea, so I might as well make the original cost $50. But on second thought, it's Millie's idea. Mind if I give her the $10?"

"Not at all," grinned Ed Eggers. "She'll get an awful bang outa that. She wants to have her hair fixed—but with four kids—well, this ten spot will do it nicely, I believe. And Joe, you'll be putting her on the payroll, too, only you won't have to pay her unless she comes up with other ideas you can use."

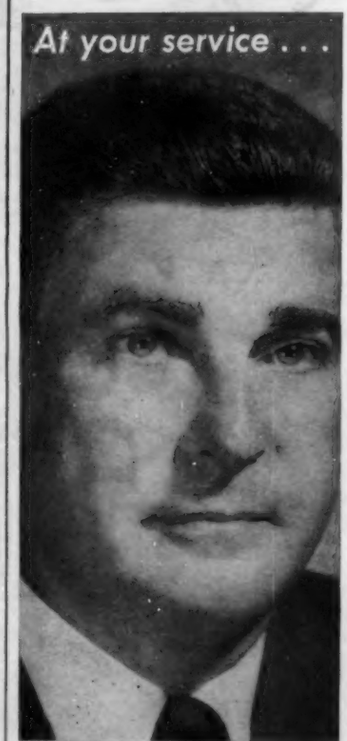
Joe laughed. "That's right, Ed. Man, have we got an alert organization, from husbands right down the line."

## *Feeders Group Moves*

LOS ANGELES, CAL.—The California Cattle Feeders Assn. has moved its offices from the Administration Building at the Los Angeles Union Stock Yards to 972 S. Goodrich Bldg., room 229, Los Angeles 22.

George Tucker, secretary-manager, announced the new telephone number is OVerbrook 5-7782.

*At your service . . .*



*In the Pacific Coast states Frank Wenter represents The Miller Publishing Company. Frank's long experience as a business executive eminently qualifies him as a sound adviser in sales and marketing.*

*When you're interested in exploring opportunities in the agricultural industries area, call Frank at Granite 7-6850 or write him at Suite 9A, 11681 San Vicente Blvd. in Los Angeles.*

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**Carroll Swanson Sales Co.**
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**Joe N. Pless Co.**
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**Sunset Feed & Grain Co., Inc.**
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**Stegal Milling Co.**
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**Davis Enterprises, Inc.**
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**R. D. Erwin Co.**
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**Good-Life Chemical, Inc.**
301 South First St., Effingham, Ill.

**Grandone, Inc.**
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**Harris-Crane, Inc.**
221 So. Church St., Charlotte, N. C.

**La Budde Feed & Grain Co.**
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# WORTH LOOKING INTO

NEW PRODUCTS • NEW SERVICE • NEW LITERATURE

DESCRIPTIONS OF NEW AND IMPROVED PRODUCTS AND SERVICES PROVIDED BY MANUFACTURERS AND SUPPLIERS ARE PRESENTED IN BRIEF FORM. FOR ADDITIONAL INFORMATION, PLEASE USE THE ACCOMPANYING COUPON.

## No. 7823—Package Feed Mill

The Ross Manufacturing Co. has introduced a new compact package feed mill that will operate in a building 15 ft. by 25 ft. It is said to be convenient for custom grinding. The company says that one man can produce 30 to 50 tons of complete poultry or hog feed in a nine-hour day. "Based on a saving of $10 per ton, the mill will pay for itself in 15 working days," according to the firm. Complete installation requires only 72 hours. For more information, check No. 7823 on the coupon and mail.

## No. 7824—Air, Auger System

An auger-to-air unit has been added to the Pamco line by Productive Acres Manufacturing Co. The unit combines the features of the company's auger system with a versatile air unit, company literature stated. The floor auger transfers materials to the air unit. Flange bearings aid performance. The veins have been tooled to 1/3000 of an inch, the company says, and bulging is eliminated due to turning of the vein after all welding is completed. A round feeder opening discharges materials with uniform efficiency. Size is up to 2 cu. ft. capacity. The unit is all hydraulicly operated. For more complete information, check No. 7824 on the coupon and mail.

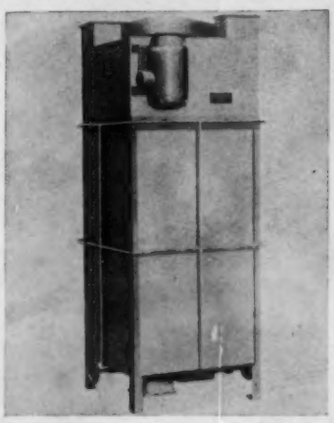
## No. 7827—Scours Treatment

Treatment for baby pig scours—nf-180 Suspension—is being announced by Hess & Clark. The product is available in two sizes, 100 cc, which treats 50 baby pigs, and the 450 cc herd size, which treats 225.

Both sizes have the free "Furamatic" dispenser. The product is a germ killing agent. According to company literature, hog producers can see results in 24 hours, using the product. For details, check No. 7827 on the coupon and mail.

## No. 7825—Mill Equipment Line

A line of feed and flour mill equipment, produced through the combined effort of the Turner-Ross Companies, has been announced. The line will consist of a new square mixer (illustrated), a new design pellet cooler, shaker and scalper. Also being introduced is the T-R MonoRoll Cubing and Pelleting Machine from 25 to 75 h.p. with the basic machine being 25 h.p., with a capacity of about 54 cwt. an hour. The MonoRoll machine features simplicity of operation with no die clamps, no gears, four Timken bearings, increased output per horsepower, and improved cubing and pelleting quality, company literature said. Other features include reversible bolt-fixed die, accurate feed control and noiseless operation. More information about the complete line can be obtained by checking No. 7825 on the coupon and mailing.



## No. 7816—Low Beam Weigh Buggy

A weigh buggy has been developed by Leach Manufacturing Co. designed with a low beam to permit clustering of ingredient bins two or more deep. The Lemanco Weigh Buggy comes in two models—900 lb. and 1,200 lb. capacities at approximately 40 lb. of feed per cubic foot. Both models have an over-all height of only 42 in. The scale beam has a capacity of 1,300 lb. permitting building up sides of weigh buggy where height is no problem, the company says. For more information, check No. 7816 on the coupon and mail.

## No. 7829—Bulk Bin

Leach Manufacturing Co. announces a new bulk bin with sloping gate, called "7640-G," which can be used as a cart as well as over an automatic feed hopper. The base can be purchased separately by those poultrymen now using the 7618-6 door bin who wish to convert to automatic feeding, the company says. Sides and corners of the latter model can be used, effecting a considerable saving, the company says. For further information, check No. 7829 on the coupon and mail.

## No. 7826—Spring Promotion Plan

Dr. Salsbury's Laboratories announces a spring promotion plan built around the theme "Spring Chick-Chek Program." Flock owners are asked to check their facilities, their supply of feeders and waterers, their vaccination program, their ration and other items of management. The product-sell focuses on Medic Aid Powder, an antibiotic vitamin combination for poultry drinking water. Also featured are Germex for sanitation and vaccines. Advertising in appropriate media and on the radio is backing the plan. Included is a vaccination-date calculator as a give-away piece to figure the dates on which the customer should vaccinate. More complete details can be obtained by checking No. 7826 on the coupon and mailing.

## No. 7830—Portable Conveyor

The availability of a positive pressure portable conveyor for free-flowing, lightweight materials has been announced by Sprout, Waldron & Co., Inc. Designated as "Pneu-Flo 10," the unit has a rated capacity of 8 tons an hour on poultry and dairy feeds weighing 25-35 lb. per cu. ft. At one installation, the company says, the unit is being used to load oats into a bulk truck and 12 tons an hour has been achieved. The unit is a low velocity, positive pressure system designed for conveying distance of approximately 40 ft. The feeder is adjustable for different conveying rates

**Send me information on the items marked:**

- ☐ No. 7816—Low Beam Weigh Buggy
- ☐ No. 7818—Forage Flavor Preservative
- ☐ No. 7823—Package Feed Mill
- ☐ No. 7824—Air, Auger System
- ☐ No. 7825—Mill Equipment Line
- ☐ No. 7826—Spring Promotion Plan
- ☐ No. 7827—Scours Treatment
- ☐ No. 7828—Feed Grade Urea
- ☐ No. 7829—Bulk Bin
- ☐ No. 7830—Portable Conveyor

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by means of a crank. For more information, check No. 7830 on the coupon and mail.

## No. 7818—Forage Flavor Preservative

Flavor Corporation of America announces the availability of "Corn Silo-Joy," a corn silage flavor. The company also has the Grass Silo-Joy. The new product helps keep the flavor and aroma of well preserved, high moisture corn in silage, the company says. Other features, according to company literature, include high palatability factor in silages, stops silage stink, eliminates milk off-odors and increases silage intake. For complete details on research data and promotional materials and one free cow-feeding sample, check No. 7818 on the coupon and mail.

## No. 7828—Feed Grade Urea

Monsanto Chemical Co., Inorganic Division, announces the availability of a micro-prilled feed grade urea that is dust-free and non-caking. Each small prill, the company says, is completely coated to remain free-flowing under all conditions. The product is compatible with feed formulation and will not "settle out," it was noted. Urea, used in ruminant feed mixtures, supplies a concentrated source of protein for animals. It is available in 80 lb. multi-wall polyethylene-lined bags that are anti-skid treated. For more information, check No. 7828 on the coupon and mail.

## *Also Available*

**The following new products have been described in previous issues of Feedstuffs and information about them may still be obtained by jotting the appropriate number of the coupon and forwarding it to Feedstuffs.**

**No. 7795**—Egg cartons, Tobias Enterprises.

**No. 7796**—Merchandising program, National Vitamin Products Co.

**No. 7797**—Poultry disease treatment, Abbott Laboratories.

**No. 7798**—Proportioning pump bulletin, B-I-F Industries.

**No. 7799**—Bulk feed body, North American Manufacturing Co.

**No. 7800**—Hinged side panel, Sprout, Waldron & Co., Inc.

**No. 7801**—Bulk truck service, Productive Acres Manufacturing Co., Inc.

**No. 7802**—Plastic shipping sack, Owens-Illinois Glass Co.

**No. 7803**—Weighing system brochure, Howe Scale Co.

**No. 7804**—Square hole nests, James Manufacturing Co.

**No. 7805**—Antibiotic supplement, S. B. Penick & Co.

**No. 7806**—Super concentrate plan, Ultra-Life Laboratories.

**No. 7807**—Copper sulfate block, Peebles' Specialty Products, Western Condensing Co.

**No. 7808**—Cob bin door, Shelby Manufacturing Co.

**No. 7809**—Animal health promotion, Chas. Pfizer & Co., Inc.

**No. 7810**—Water-tube steam boilers, Nebraska Boiler Co., Inc.

**No. 7811**—Static electricity neutralizer, Statikil, Inc.

**No. 7812**—Tag handling machine, K&S Metal Products Co.

**No. 7813**—Swivel-piler, Stephens-Adamson.

**No. 7814**—Flavor research, Flavor Corporation of America.

**No. 7815**—Sifter data, Sprout, Waldron & Co., Inc.

**No. 7817**—Snap-in keylock bushing, Landers Mill Manufacturing Co.

**No. 7819**—Pig health product, American Cyanamid Co.

**No. 7820**—Auger molasses mixer, Pacific Molasses Co.

**No. 7821**—Poultry management book, Merck & Co., Inc.

**No. 7822**—Product display stand, Douglas Chemical Co.

## 9% Smaller Poultry Population in Canada

OTTAWA—Poultry population on Canadian farms on Dec. 1, 1959, was 50,960,000 birds, 9% smaller than the year earlier total of 56,008,000, according to the Dominion Bureau of Statistics. Smaller numbers of hens and chickens, turkeys, ducks and geese were reported.

Practically all of the decline occurred in the number of hens and chickens which dropped 9% to 46,975,000 from 51,770,000 a year earlier. For Canada as a whole the number of hens and pullets six months old and over increased 1% over 1958, but pullets 2-6 months old decreased 25%, cocks and cockerels 34% and chicks 13%.

The estimated number of turkeys on farms declined to 3,375,000 from the year earlier total of 3,609,000, geese dropped to 269,000 from 280,000 and ducks dropped to 341,000 from 349,000.

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ECONOFERM offers a reliable source of unidentified growth factors to promote faster gains. It is rich in essential known ingredients, including 5 important vitamins. With Econoferm in your feed, you offer your customer, in moisture-resistant 50 lb. bags, a product that has all the benefits of dry fermentation solubles—and you have the LATEST scientific advances in your feed.

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**HAS BEEN A BIG FACTOR IN OUR BECOMING ONE OF THE LARGEST CO-OPS IN WISCONSIN"**

*Says Carl Woizeski, General Manager of Larsen Co-operative Co., Larsen, Wisconsin.*

Carl Woizeski, above, manages the Larsen Co-operative Co. and employs eight men in the feed department.

Three Strong-Scott Triple Action Mixers are mounted overhead. A screw conveyor carries material out for bulk discharge into trucks.

"We are presently operating four Strong-Scott Triple Action Mixers, a 5-ton, two 2-ton and a 1-ton, plus one molasses mixer," says Carl. "These do a good job of mixing and I guess the fact that our customers are well satisfied bears this out.

"We can run 12 ton an hour in our Strong-Scott Molasses Mixer and get excellent results. Maintenance on our Strong-Scott equipment is almost nil. In the one year we have had our Strong-Scott Hammermill, we have never had to change a screen. They are wonderful," concluded Carl. The contractor at Larsen, recently completing the newest addition, was A. Winterfeldt.

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## Farm Bureau Co-op For Marketing Set

CHICAGO — Incorporation of the American Agricultural Marketing Assn. as a national farm marketing cooperative has been announced by Charles B. Shuman, president of the American Farm Bureau Federation. The new cooperative will serve as an affiliate of the American Farm Bureau Federation.

First action of the new unit is expected to be in the processed fruits and vegetables field. The announcement did not mention any other products, such as animal products, specifically.

Original announcement of the new marketing unit was made Sept. 24, with a recommendation by the federation board of directors. The recommendation was approved at the 1959 AFBF annual meeting by the voting delegates of the member State Farm Bureaus.

Delegates okayed these recommendations at the meeting:

"That a national marketing association be established as an affiliate of the American Farm Bureau Federation, with the necessary legal controls provided in its corporate structure to assure a continuing, satisfactory relationship with the Farm Bureau.

"The objectives of this national association would be:

"(1) To assist State Farm Bureaus in organizing and servicing bargaining associations;

"(2) To provide a means to coordinate the efforts of the state and regional bargaining associations;

"(3) To conduct research; analyze contracts and contract terms, and to furnish information on supply, demand, contract prices, etc.;

"(4) To discuss—and if it becomes necessary, to negotiate — contract terms, quality control and related matters with individual companies that operate on a national or regional basis with national and regional associations of canners, freezers, processors, packers, buyers and others engaged in, or associated with, the purchasing, handling and selling of agricultural commodities."

Following approval at the annual meeting, the AFBF Board authorized the federation's officers to take steps to incorporate the affiliate, approve the corporate name and designate the first board of directors.

The marketing unit's first board, whose members also are on the AFBF board's executive committee, is composed of: Mr. Shuman, AFBF president; Walter L. Randolph, AFBF vice president and Alabama Farm Bureau Federation president; Stacey Cole, New Hampshire Farm Bureau Federation president; Charles Marshall, Nebraska Farm Bureau Federation president; Louis A. Rozzoni, California Farm Bureau president, and Boswell Stevens, Mississippi Farm Bureau president.

## *Mid-South Urged to Raise More Cattle*

MEMPHIS, TENN. — Farmers in the mid-south area were urged to raise more cattle for additional profits in the Shelby County Livestock Association's beef producers conference here at the Hotel Claridge.

Several experts and a panel of farmers discussed prospects for this growing industry.

Clinton Shelby, farm economist of the Tennessee Extension Service from Jackson, Tenn., said there is a continuing strong demand for beef, both in the mid-south and over the nation. Mr. Shelby said the area has the demand for the product, the necessary market, a good supply of feed, a supply of animals and ample pasture.

Mr. Shelby said mid-south cattlemen can get into business for a smaller capital investment than can their northern and midwestern competitors.

## *Valley Mills Names Territory Manager*

VICKSBURG, MISS.—Hyde Powers, Vicksburg, has been appointed territory manager for Valley Mills of Vicksburg, according to W. C. Roberson, sales manager.

Hyde Powers

Mr. Powers is a graduate of Mississippi State University with a B.S. degree in agricultural economics. For the past several months he has been associated with the firm as a sales trainee and more recently as assistant manager and trainee of the company's farm store in Vicksburg.

He will establish headquarters in Columbus, Miss. Valley Mills manufactures Grade A Feeds which are distributed throughout Louisiana, Mississippi and Alabama.


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# Farm Institute Speaker Calls Farm Surplus 'Political'

DES MOINES, IOWA—Warnings that the cause of the present farm surplus is largely political and that proposed remedies such as the "compensatory payment plan is a trap" were voiced by Allan Kline, former president of the American Farm Bureau Federation at the National Farm Institute here Feb. 20. Mr. Kline is now a consultant to the U.S. Department of State and the U.S. Department of Agriculture.

Strongly expanded soil bank programs, strict production control and increased exports of surplus commodities, especially wheat, to underfed countries as means of promoting world peace, were urged by other speakers.

"Farmers have drawn a $10 billion check against their future income in government pay for surpluses still to be used," Mr. Kline pointed out. "People and capital now in farm production are more than we can efficiently use. Hence prospects for income per person and return on investment are not good. The $10 billion of false 'demand' arising from government programs has been a major factor in getting and keeping these excess resources in farming."

**Former Ag Secretaries Speak**

Two former U.S. secretaries of agriculture spoke at the Feb. 20 session, Charles F. Brannan of Denver, Colo., secretary from 1948 to 1953, and Claude R. Wickard of Camden, Ind., secretary from 1940 to 1945.

Mr. Brannan emphasized that we are now traveling in the direction of "no farm programs" as movements are under way to remove price stabilization or make existing ones useless.

He stressed the importance of using surplus foods in the underfed parts of the world, but said little has been done. He suggested a plan for exporting food, without disturbing world markets or the price structure of any particular commodity. In countries as India or the new nations of Africa, the U.S. government could agree to "give X tons of wheat per year for the next 10 years, with the provision that they do not get into the commercial markets of your country, and that you use this food to pay people to work on public projects, persons not now employed and projects not now in construction."

Mr. Wickard in reply said that "forcing our surpluses on the world creates international problems, of which we also have a surplus." He said the only thing on which agriculture leaders agree is that "agriculturally we are in a fix." He suggested that "we must have a solvency plan of our own to survive in this rigged economy." He recommended "we should adopt measures which will remove the cause of the present difficulties and immediately retire 70 million acres from production."

George M. Strayer, Hudson, Iowa, executive vice president and secretary-treasurer of the American Soybean Assn., suggested it may have become more profitable for business, and farmers, to store rather than to sell farm products, namely corn, cotton and wheat. He recommended finding markets abroad, and the commodity approach to the market problem as worked out by the soybean association. Last year 110 million bushels of soybeans was exported, one bushel out of every five produced. In the past 18 months, representatives of the soybean association have visited 40 countries surveying potential markets for U.S. soybeans and soybean products.

**Report on Exports**

Dr. Max Myers, administrator, Foreign Agricultural Service, USDA, reported that agricultural exports this year will have a value of about $4.2 billion, with dollar sales at about 70% of the total export movement. He said, however, that foreign production cannot absorb all the surplus, and we "cannot load our domestic farm problems on ships and get rid of them."

George M. Doup, farmer and president of the Indiana Farm Bureau Federation, set a figure of 60 million acres as the minimum that should be retired from production next year by law. ACP funds should be used in the conservation reserve program to establish cover crops on the retired acres, he said. To make this retirement program work, however, he said government owned surpluses must be withheld from markets and be used to supply the needs of emergencies or hardship situations abroad.

Walter B. Garver, manager, agriculture department, U.S. Chamber of Commerce, Washington, D.C., spoke in favor of the free market approach, as against contrived devices that "tailor production or rig prices or produce net income that isn't there."

**Suggests "Long Look"**

Earl O. Heady, professor and director, agricultural economic adjustment center, Iowa State University, Ames, suggested the long look to 25 or 50 years from now, rather than resorting to immediate remedies. He suggested putting off ACP practices that give help in contours, terraces, draining, leveling and reservoirs that tend to increase production. He favored putting entire farms in the conservation program.

James G. Patton, Denver, president, National Farmers Union, said the nation has no officially declared policy on using our productive abundance for relieving hunger at home or abroad.

Karl Brandt, Washington, D.C., a member of the Council of Economic Advisors to the President, spoke out against throttling agriculture by controls: "I consider this business with over 208 billion dollars production assets and only 24 billion dollar debts as strong, financially sound and one

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that will, in the end, continue to defy attempts at controlling its performance and aggregate output by quotas of production marketing, as it has in the past."

## NEEPA Membership

WARREN, MAINE—With a membership growing from all of the New England states, Carl B. Erickson, Warren, treasurer of the New England Egg Producers Assn., Inc., announced that the 300 members enrolled recently housed more than 1,500,000 layers.

While a detailed analysis by states is planned, the processing of this flood of applications has not left enough time for a closer evaluation, he said.

Mr. Erickson pointed out, however, that individual flocks, so far, range in size from 25 birds to 60,000, and that if membership continues at the present rate, the association's first year goal of 1,000 members or 6 million birds will soon be a reality.

## Farm Income Off 16%; Expenses Up

WASHINGTON — Net income for farmers dropped 16% in 1959 and production expenses rose 3½% to a new record, the U.S. Department of Agriculture reports.

The farm income of $11 billion in 1959 was off 16% from the 1958 total but about the same as in 1957. Production expenses of $26 billion set a new record.

Realized gross income, estimated at $37 billion, was off about 3½%. The decline in gross income reflected a 4% drop in average prices received for farm products, only partly offset by a 2% increase in volume of sales, plus a reduction in government payments due to discontinuance of the acreage reserve program, USDA notes. Total cash receipts from marketings were down 2% to $32.8 billion. Government payments dropped more than a third, or approximately $400 million.

Most categories of production expenses were higher than in 1958. The only important exceptions were rental payments and purchased feed and seed. Farmers' gross investment in buildings, machinery and equipment in 1959 reached a new high of $4.9 billion, following several years of curtailed investment spending.

Although farm income was down sharply last year, USDA points out that income of the farm population from non-farm sources rose about 6%, reflecting the general economic recovery in 1959. The number of people living on farms also declined slightly. Per capita income of the farm population from all sources was down 8% from 1958 to $960, but this was higher than in any other year since 1952.

## Alabama's January Feed Sales Off 13%

MONTGOMERY, ALA.—Feed tonnage sold in Alabama during January of this year was 13% under the tonnage of the same month a year earlier, according to a tabulation compiled from reports of manufacturers in the state using the monthly reporting system.

A summary from R. C. Bamberg, commissioner, Alabama State Department of Agriculture and Industries, showed that the feed sold in January, 1960, totaled 100,923 tons, compared with 111,541 tons sold in January, 1959.

Poultry feed sales in Alabama were lower in January of this year than in January of 1959. The drop was from 68,455 tons to 57,498 tons. Swine feed sales slipped from 5,836 tons to 3,948 tons, a reduction of about 32%.

Dairy feed tonnage made a slight gain, from 11,627 tons to 11,742 tons.

Other feeds included in the report were horse and mule feed, oil meals, cereal by-products, "all other feeds" and molasses.

## Plant Products Head Appointed in Canada

WINNIPEG—Appointment of Charles R. Phillips, 43, as director of the plant products division, Canada Department of Agriculture, has been announced. He succeeds the late J. W. Mackay.

Mr. Phillips has been chief of the feed, fertilizer and pesticide section of the division for four years. In 1946 he was appointed executive assistant to the feeds administrator, feeds administration—a combined effort of the agricultural supplies board and the wartime prices and trade board. He served as manager of a Sudbury, Ont., feed plant in 1947 and joined the plant products division the next year as an administrative officer (feeds). He was named associate chief (feeds) in 1954 and chief of the section in 1956.

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On the other hand, all Koppers Micro-Ground BHT will pass through a 60 mesh and over 50% will pass through 325 mesh and remain free-flowing. One 60 mesh particle size must be broken into 125 particles to pass through a 325 mesh screen.

What's more important, the fine Koppers micro-ground particles assure you the uniform dispersion you expect from a free-flowing anti-static product. In addition, Koppers BHT takes up only a fourth of the valuable storage space compared to the 25% BHT, and it reduces handling.

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## Cosby-Hodges Adds Store Sales Specialist

BIRMINGHAM, ALA. — Appointment of Jake Mills as chain store merchandising and sales specialist at Cosby - Hodges Milling Co. has been announced by J. C. Hodges, Jr., executive vice president.

Jake Mills

Mr. Mills has been affiliated with the Kraft Foods Co. for the last eight years.

He attended the University of Alabama School of Business Administration after serving in the U.S. Navy for two years.

Mr. Mills was graduated from Hale County Hill School.

## Yieldmor Turkey Meeting Scheduled

PIQUA, OHIO—The Yieldmor Turkey Management and Disease Control Clinic sponsored by Yieldmor Feeds, Inc., has been scheduled for March 24 at the Elks Ballroom.

Turkey breeding, feeding and management, along with a look into future of the industry, will be topics under discussion during the one-day session.

Howard E. Wildey, secretary of the Ohio Turkey Assn., Columbus, will speak at the morning session on "The Future Hopes of the Ohio Turkey Industry," and Dr. M. G. McCartney, veterinarian with the Ohio Experiment Station at Wooster, will speak on "Turkey Breeding of the Future."

A panel, moderated by Dr. A. R. Winter, Ohio State University, Columbus, will discuss management.

Dr. J. R. Couch, Texas A&M College, College Station, will speak in the afternoon on "Turkey Feeding and Management Program—1960 Style." A disease control panel, with Dr. Glyde A. Marsh, veterinarian with Ohio State University, Columbus, moderating will close out the meeting.

## Hoffman-Taff Names District Sales Head

SPRINGFIELD, MO. — Appointment of J. H. Sanders as sales manager of the animal nutrition division for the southwest district has been announced by Hoffman - Taff, Inc. This area includes Texas, Oklahoma and New Mexico.

J. H. Sanders

Mr. Sanders formerly was manager of the feed nutrition department of the Dallas office of Van Waters & Rogers. In conjunction with the appointment, Hoffman-Taff said it has established warehouse facilities at Arlington, Texas. A complete stock of vitamins, vitamin blends and premixes and other Hoffman products will be maintained at the new warehouse, officials said.

## Ad Unit Reorganized

RAHWAY, N.J. — Organization changes to increase the effectiveness of the agricultural products advertising and promotion department of Merck chemical division, Rahway, N.J., have been charted by H. George Wolfe, advertising and promotion manager for agriculture. The change divides responsibilities for feed products and animal health products.

J. Gordon Johnson will be advertising planner, particularly concerned with the advertising and promotion of Merck feed products. Ronald F. Gilrain, formerly supervisor of advertising services, will become advertising planner for animal health products in both the proprietary and professional fields. Ernest J. Neill will continue to conduct product information and publicity activities in Merck agriculture and, in addition, will supervise promotional programs, exhibits and field meetings.

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# Iowa Reports Results Of Sorghum and Grit Experiments on Birds

AMES, IOWA—The department of poultry husbandry at Iowa State University has reported in the proceeding of a Poultry and Egg Conference the results of experiments conducted to determine (1) the effects of substituting milo for corn in chick rations, (2) the effect of grinding milo and providing grit for chicks, (3) the comparative values of grit in "complete" and "free-choice" layer feeding systems and (4) the comparative feeding values of several grain sorghum varieties.

### Sorghum Experiments

Tables 1, 2 and 3 show the results of chick trials with grain sorghums.

In the experiment in which results were recorded at 4 weeks (Table 1), there was little difference in either weight or fed conversion, except when all the corn was replaced by grain sorghum.

Dr. S. L. Balloun, department of poultry husbandry, reports that not always, however, did grain sorghum prove to be as nutritious as corn. In one experiment (Table 2), in which corn was replaced by milo, weight gains and feed efficiency were reduced. In this experiment, performed with older broiler-type chicks, each replacement of 20% of the corn by 20% milo reduced weight gains by 5% and decreased efficiency by 3.5%. "With broilers, this would be a serious reduction in performance," Dr. Balloun notes. "With larger-type pullets it would not be so serious."

Table 3 shows some results of experiments in which Iowa State researchers fed milo whole, cracked or ground, with grit and without grit. These experiments were with older birds. The first experiment covered the period from 8 to 12 weeks of age, and the second experiment covered the period of 4 to 12 weeks.

In the experiment having to do with the effect of grinding milo and of feeding grit (Table 3), grinding or cracking the milo made little difference in gain and feed conversion, provided grit was fed. When whole milo was fed, the feeding of grit improved gains by 16% and feed efficiency by 13%.

Dr. Balloun reports that several varieties of milo were fed in other tests to determine whether there were differences in the nutritive values among the kinds of grain sorghums grown in Iowa. (See Table 4.) In these tests, grain sorghum was the only grain in the ration. Five varieties proved very nearly equal in feed value.

### Grit Tests

In tests with hens in cages, feeding grit improved egg production and decreased feed required per dozen eggs. Table 5 summarizes the results of such a trial.

In general, said Dr. Balloun, layers fed a "complete" feed laid more eggs on less feed. When a "free-choice" system—concentrate plus shelled corn—was used, hens fed grit produced 10% more eggs on 13% less feed per dozen eggs. Hens fed grit returned nearly 50¢ more net income per hen than those receiving no grit.

"Although the differences were not as great when a complete, all-mash feed was used, even with this type of feed, it paid to feed grit," Dr. Balloun reports. "In this case, feeding grit increased production by 5% on 8% less feed."

**TABLE 1. Substituting Milo for Corn**

| % Grain in Mash | | Results at 4 Weeks | |
|---|---|---|---|
| Corn | Milo | Weight, gm. | Feed/lb. gain |
| 60 | 0 | 325 | 1.98 |
| 40 | 20 | 338 | 1.99 |
| 20 | 40 | 321 | 1.96 |
| 0 | 60 | 282 | 2.04 |

**TABLE 2. Substituting Milo for Corn**

| % Grain in Mash | | Results at 10 Weeks | |
|---|---|---|---|
| Corn | Milo | Weight, gm. | Feed/lb. gain |
| 60 | 0 | 1,420 | 3.0 |
| 40 | 20 | 1,332 | 3.1 |
| 20 | 40 | 1,284 | 3.2 |

**TABLE 3. Effect of Grinding Milo and of Grit**

| | Whole | | Cracked | | Ground | |
|---|---|---|---|---|---|---|
| | No grit | Grit-fed | No grit | Grit-fed | No grit | Grit-fed |
| **Experiment 1 (8-12 weeks)** | | | | | | |
| Weight gain (lb.) | 1.75 | 2.04 | 1.90 | 2.04 | 2.06 | 2.00 |
| Feed per pound | 4.30 | 3.80 | 3.86 | 3.85 | 3.70 | 3.65 |
| **Experiment 2 (4-12 weeks)** | | | | | | |
| Weight gain (lb.) | 2.59 | 2.77 | | | 2.55 | 2.65 |
| Feed per pound | 3.38 | 3.30 | | | 3.33 | 3.26 |

**TABLE 4. Comparison of Several Grain Sorghum Varieties**

| Experiment 1 | |
|---|---|
| Variety | Weight 3 weeks (gm.) |
| R-60 | 296 |
| R-66 | 281 |
| Rs-650 | 300 |
| Martin | 300 |

| Experiment 2 | | |
|---|---|---|
| Variety | Wt. 4 weeks (gm.) | Feed/lb. gain |
| R-60 | 368 | 1.88 |
| R-66 | 363 | 1.92 |
| Rs-650 | 361 | 1.98 |
| Martin | 354 | 1.92 |
| ISU | 366 | 2.07 |

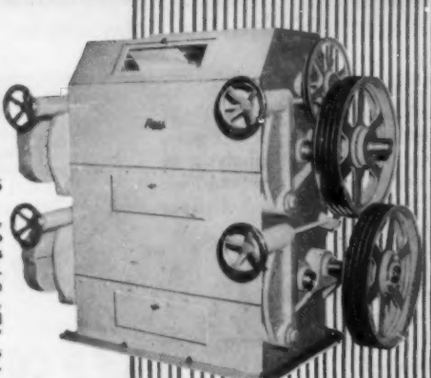
**TABLE 5. Effect of Grit with Two Systems of Feeding**

| | "Complete" feed | | "Free-choice" | |
|---|---|---|---|---|
| | No grit | Grid-fed | No grit | Grit-fed |
| Egg production (%) | 65.4 | 68.4 | 59.2 | 65.5 |
| Feed/doz. | 4.96 | 4.55 | 5.88 | 5.10 |


**Get longer life & better service!**

with . . .

**ROSS Two-High Cracker for Hard Grains**



Unequalled for soybeans, corn, milo, etc.! Comes also in Three-High, with rolls 10 x 30, 10 x 36 & 10 x 42. Super-rugged construction for hard, 24-hour service, featuring exclusive solid chilled iron "Turn-Tuff" Rolls. Special corrugations for salt, potash, corn, soybeans, etc. All-Steel construction; oversize roller bearings throughout.

Special Soybean Corrugations from 4-5 to 12-14 per inch, or to specifications.

ROSS MACHINE & MILL SUPPLY, INC.

Roller Mills, Turn-Tuff Rolls, Corrugating
12 N.E. 28 • Ph. JA 8-2132 • Okla. City, Okla.

Ross Machine & Mill Supply, Inc.
12 N.E. 28th St., Okla. City, Okla.
Gentlemen:
Please send FREE copy of your complete catalog on Ross Roller Mills, Turn-Tuff Rolls, Steamers & Coolers. FS
Name _____
Firm _____
Address _____
City _____ State _____


## *West Texas Range Feed Sales Increase*

ODESSA, TEXAS — Several West Texas feed dealers report that range feed sales have increased rapidly since the weather turned colder. Winter moisture has helped deteriorate old grass, and lower temperatures coupled with higher winds have brought discomfort to range cattle.

W. T. Henderson, local feed dealer, says ranchers in the sandier parts of the state and in eastern New Mexico are beginning to feed in order to ward off shinnery poison. In these deep sand pastures, the scrub oak greens up earlier than grass and often poisons cattle.

Livestock seldom eat the oak leaves if there is sufficient feed, so the owners put out feed regularly until spring grass comes up. Most of the feed sold to ward off shinnery poisoning has been range cubes which have plenty of molasses and salt in them.

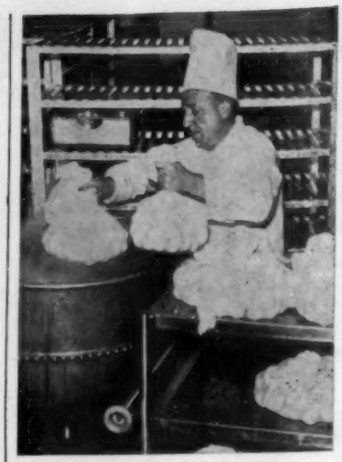
Another dealer, John Clark, Lamesa, says range feeding has increased considerably since Feb. 1. He attributes part of it to the fact that ranchers did not have as much grass as they had estimated.

## ADM Will Dispose Of Linseed Plant

MINNEAPOLIS— Archer-Daniels-Midland Co. said March 1 that its Buffalo linseed plant and elevator are for sale. The company has not operated the linseed plant for more than two years. ADM said that it decided to dispose of the Buffalo facilities because of the changing pattern of company operations.

The Buffalo linseed plant was built in 1916 to process imported flaxseed that came principally from Argentina, as well as domestic flaxseed which at that time still was grown in the eastern U.S. In recent years, however, little or no flaxseed has been imported, while domestic production has shifted westward with 95% of flaxseed now grown in the North and South Dakota and Minnesota area.

ADM has a large linseed plant at Minneapolis. When the Buffalo plant was operating the elevator there was employed as a storage facility for flaxseed for the plant. It also was used as a transshipment point for grain that was shipped from Duluth-Superior down the Great Lakes for export through East Coast ports.



**HERE'S HOW—William Weber, chef at the Sheraton-Jefferson Hotel, St. Louis, prepares to cook a portion of the thousands of eggs distributed by Hess & Clark in its "Golden Goodness of Eggs" campaign. Mr. Weber follows the cooking directions for hard-cooked eggs as outlined by the Poultry and Egg National Board.**

## Hess & Clark Prepares Egg Campaign Booklet

ASHLAND, OHIO — A three-color brochure describing the company's year-around series of "Golden Goodness of Eggs" promotions designed to help increase egg consumption has been prepared by Hess & Clark.

In conducting the campaign during the past year, it is pointed out, Hess & Clark has given hard-cooked eggs to more than a quarter of a million persons. Along with an egg, the company has provided each recipient with a Morton Salt dispenser and a promotional folder containing recipes supplied by the Poultry and Egg National Board.

Hess & Clark spokesmen say they have found that many people do not know the proper way to hard-cook (not hard-boil) eggs.

Company officials have explained to the public through all forms of communication media the proper method recommended by PENB home economists: "First, put cool eggs into warm water, then lift them into boiling water, reduce the heat and allow them to simmer 20 minutes. Cool the eggs promptly in cold water for several seconds. This prevents further cooking, makes them easy to handle and maintains their mild flavor, tenderness and attractiveness."

Persons interested in obtaining more information about the "Golden Goodness of Eggs" campaign may contact Hess & Clark, Ashland, Ohio.


**BOWMAN PRODUCTS**

**BoDEE (Mineral) STABLE VITAMINS D**
Vita D that will not decompose when combined with minerals.

**BoDEE**
Vitamin D-2 or D-3 in dry, oil or water dispersible forms.

**BoA-S and Bo-A**
Stable dry vitamin A products.

**BHT**
Oil soluble Vitamin protector and pigmentation aid.

**HYDROPOID**
Dry, free-flowing partially hydrogenated animal fat.

**XANTHOPHYLL CONCENTRATES**
For better poultry pigmentation.

**CLOROFOLEN**
Effective dog food deodorant.

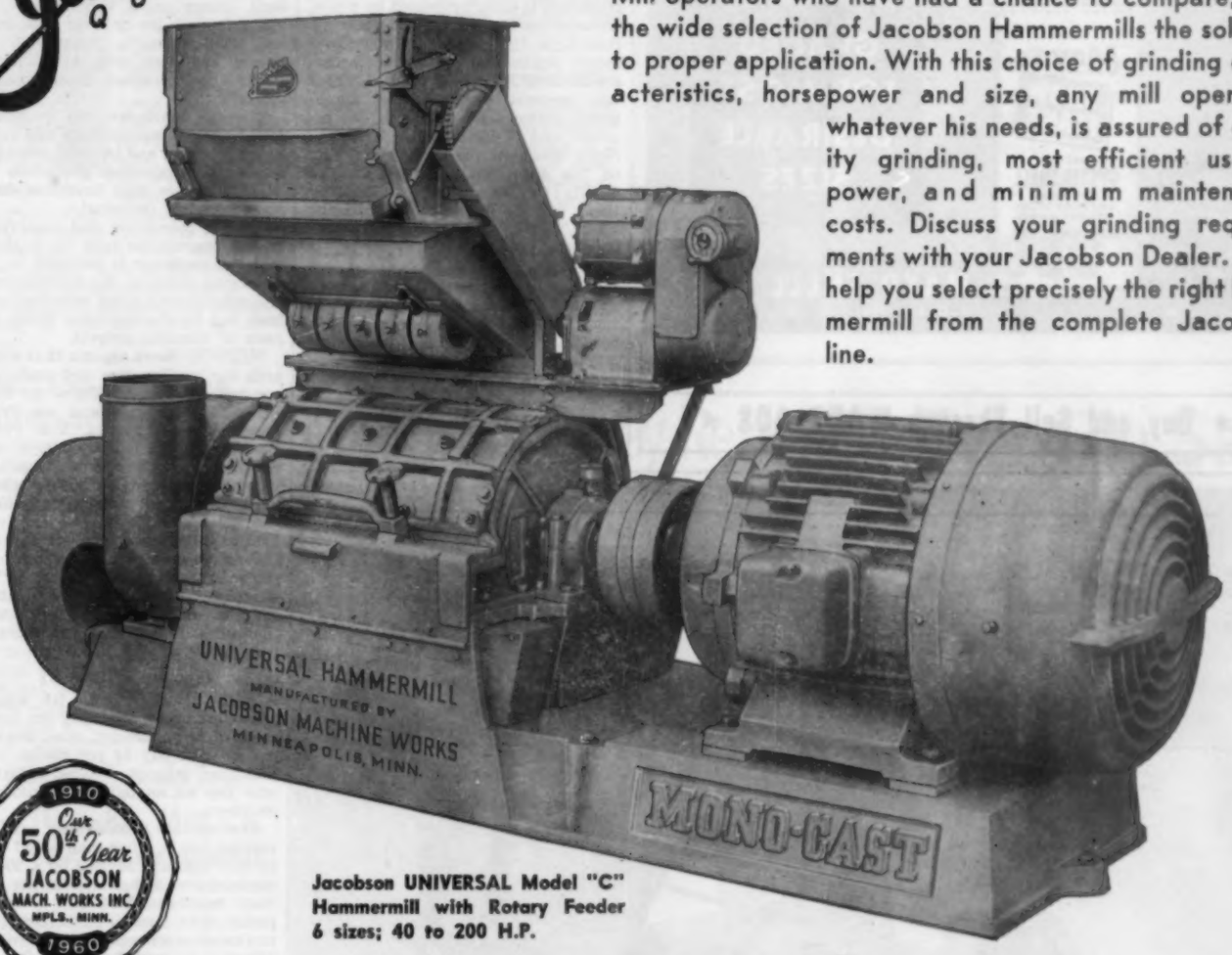
**ENZYMATIC SYSTEMS**

**Bowman Feed Products, Inc.**
130 Central Ave. HOLLAND, MICH.
13160 Ortley Place VAN NUYS, CALIF.

# Jacobson QUALITY Hammermills

## Wide Selection for Proper Application

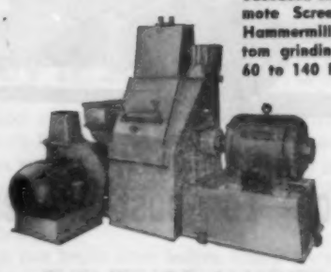
Mill operators who have had a chance to compare, find the wide selection of Jacobson Hammermills the solution to proper application. With this choice of grinding characteristics, horsepower and size, any mill operator, whatever his needs, is assured of quality grinding, most efficient use of power, and minimum maintenance costs. Discuss your grinding requirements with your Jacobson Dealer. He'll help you select precisely the right hammermill from the complete Jacobson line.



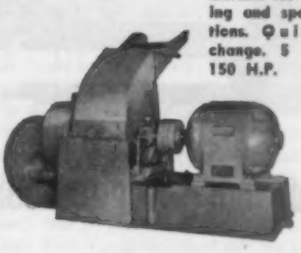

Jacobson UNIVERSAL Model "C" Hammermill with Rotary Feeder 6 sizes; 40 to 200 H.P.

1910 Our 50th Year JACOBSON MACH. WORKS INC. MPLS., MINN. 1960

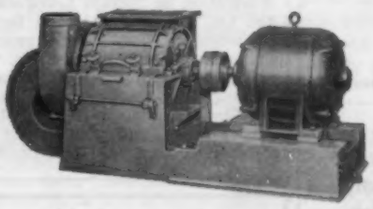
Jacobson AJACS-O-MATIC Remote Screen Change Hammermill. 4 sizes; 50 to 160 H.P.



Jacobson MASTER Remote Screen Change Hammermill for custom grinding. 3 sizes; 60 to 140 H.P.



Jacobson AJACS Hammermill for custom grinding and special applications. Quick screen change. 5 sizes; 20 to 150 H.P.



Jacobson UNIVERSAL "Junior" Hammermill. 3 sizes; 10 to 50 H.P.

Jacobson AJACS Model "IT" Hammermill. 4 sizes; 20 to 100 H.P.

Jacobson SPEEDY Grinder. 1 size; 5 to 15 H.P.

Jacobson PULVERATOR for moderate grinding capacity or finishing dry products. 5 sizes; ¾ to 15 H.P.

*Write for Bulletins and Name of Representative*

## Jacobson Machine Works, Inc.

1090 TENTH AVE. S.E. DEPT. M MINNEAPOLIS 14, MINN.

For Those Who Compare
it's
"SNOW FLAKE"
the BETTER OYSTER SHELL
GRADED FOR MOST DESIRABLE SIZES
SEND FOR LITERATURE, SAMPLES AND PRICES
50 LBS NET
MAYO'S
SNOW FLAKE
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100% THROUGH 6 MESH
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WRITE WIRE PHONE
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★ Buy and Sell Through WANT ADS ★

## 'Penn's Best' Plan Unites Production, Marketing of Eggs

TRENTON, N.J.—A quality control program for independent egg producers is being promoted by a new organization known as Pennsylvania's Best Eggs, Inc., which, according to a recent publication of the Northeastern Poultry Producers Council, Trenton, operates by marketing agreements between the producer, the receiver and "Penn's Best." NEPPCO News describes the group's program as "an organized effort to produce quality controlled eggs, to identify them and to promote them to the buyer."

Under Penn's Best's regulations, qualified members of the egg industry may participate "to put proven quality and sales techniques into practice." Penn's Best is a non-profit corporation "establishing a complete quality controlled egg program from producer to retailer."

**Produce for Market**

NEPPCO News tells how Penn's Best has tackled the challenge of gearing its operation to producing eggs for a specific market.

Penn's Best's marketing agreement stipulates that the participating producer: Agree to market his eggs through the program, use a strain of birds known to produce high quality eggs and maintain a minimum size flock. Many details of husbandry are outlined in the agreement, including such things as a vaccination program, feeding for uniform yolk color and shell strength, preserving egg quality and cleanliness. Age limits of layers are determined by egg quality tests.

The egg marketer, too, must follow a quality maintenance and packaging program and he must provide a quality determination procedure "so that the buyer may have confidence in the product delivered.

"Active counseling and supervision of the program for both the producer and the marketer is provided by the managing director, the servicemen of the association's allied industry members and by Pennsylvania State Bureau of Markets experts.

NEPPCO News reports that standards for quality, size and packaging are under the supervision of the State Bureau of Markets and are determined by the bureau. The Penn's Best seal is applied to cases of eggs which meet the program's standards, which are, roughly, a 90% grade A, or better, pack in large, uniform volume.

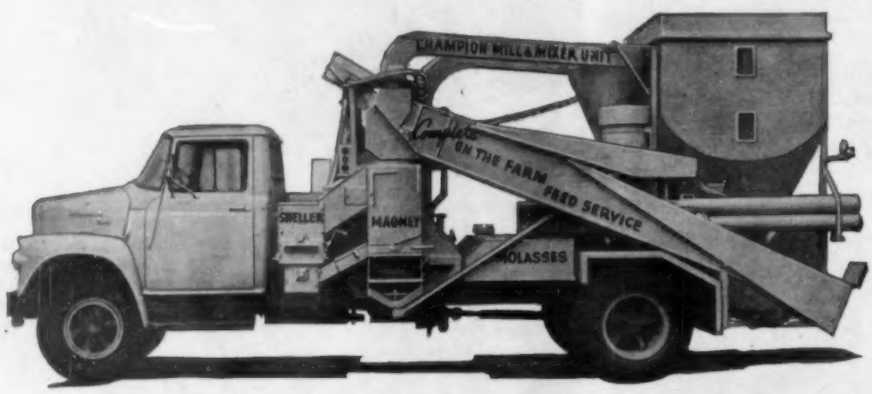
Penn's Best management says the seal is designed to supplement, not replace, established brands. "The program has been planned to utilize existing merchandising programs to the fullest and make them more effective," it was explained.

**Sources of Support**

Penn's Best derives its support from producers, who pay an assessment of 3¢ per 30-doz. case; from receivers who pay 5¢ per 30-doz. case, and from interested allied industries who pay an annual fee as associate members.

Control of Penn's Best and its policies lies in a five-man board of directors who are advised by a 40-man advisory board chosen from the associate members. NEPPCO News explains that since Penn's Best is a non-profit corporation, fees will be adjusted to actual costs as the program develops.

CHAMPION
For the Finest in Mobile Equipment . . .




Simple design—Rugged construction—Low-cost maintenance

STANDARD EQUIPMENT—
- Direct drive, 332 cu. in. engine-driven mill.
- 14-ft. swinging drag feeder.
- Permanent magnet located *ahead* of grinder.
- 2- to 3-ton mixing capacity.
- 15-ft. swinging discharge auger.
- Low, wide concentrate hopper.
- 2- to 3-ton concentrate carrying capacity.

OPTIONAL EQUIPMENT—
- GMC Diesel direct-drive power.
- Platform concentrate hopper.
- 8-compartment bulk concentrate carrier.
- Air unloading (plus standard auger).

**Champion's 2 to 3-ton carrying capacity of bagged concentrate can be dumped directly into the mixer through the platform concentrate hopper. This eliminates extra handling on the part of the operator, and also eliminates the need for an extra ingredient truck.**

CHAMPION PORTABLE MILL CO.
2109 COMO AVENUE SOUTHEAST • MINNEAPOLIS 14, MINNESOTA

## *Meat Packing Plant*

GRANTS, N.M. — Livestock from Colorado, Utah, Arizona, New Mexico and West Texas will be supplied to the proposed $1,500,000 meat packing plant to be built here with financing from industrial revenue bonds issued by the city administration.

The new plant, slated by a major packer, was planned nearly nine months ago and Grants was selected as one of the tentative sites on the suggestion of the Bureau of Indian Affairs and the State Economic Development Commission.

Formation of Navajo Livestock & Land Co., headed by Adrian Berryhill, western New Mexico rancher and holding company executive, will provide by means of performance bond the sheep and cattle supply for the plant. In addition to the plant, many ranchers are planning to establish their own feed lots nearby.

Dependable
LAB QUALITY CONTROL
Feeds, Ingredients, Fat Stability, Feed Additives and Medications — Protect Your Feed Quality.
Pope
TESTING LABORATORIES
Box 903 Dallas, Texas

## Peterson Firm Names Farm Credit Manager

DECATUR, ARK.—Ray M. Scoggins has been named credit manager of Peterson Breeding Farm, Inc., Decatur.

R. M. Scoggins

Mr. Scoggins began his career as a school teacher, but turned to the Government Agricultural Service in 1934. He spent 15 years in that service until he moved to Portland, Ore., where he was employed as office manager of Luther's Stop-and-Shop supermarkets until March, 1959. He came to Peterson's in April, 1959, where he served as chief clerk of the breeding farm until his recent promotion.

Mr. Scoggins received his college training at the University of Arkansas.

## Hens' Production in California Test High

MODESTO, CAL.—The hens in the 11th California Official Random Sample Egg Laying Test continue to produce more eggs than those of previous years, according to Emery A. Johnson, superintendent of the California Poultry Improvement Commission.

Floor birds this year, to 43 weeks of age, averaged 110 eggs, compared to 103 eggs last year and 101 eggs the year before. Cage birds, producing 106 eggs this year, considerably exceeded last year's average of 89 eggs and laid eight eggs more than those of the ninth test.

Livability among the 11th test birds also continues to be excellent, being 98.5% for the 25-week period.

## Iowa Portable Mill Co. Has New Management

OELWEIN, IOWA—New co-management of the Iowa Portable Mill Co. has been announced by directors of the firm, producer of stationary and portable mills and mixers.

Claire J. Harrington, past general manager, has been promoted to vice president in charge of production and administration, while Regis A. Harrington, Jr., has assumed the duties of vice president in charge of sales and administration.

Both Claire and Regis, Jr., are sons of the late Regis A. Harrington, past president of the firm, who was fatally injured in an automobile accident Oct. 8, 1959.

Claire Harrington has been with the company since 1957 as parts manager and more recently as general manager.

Regis Harrington, Jr., resigned a commission as an Army officer to join the firm. Prior to going into the service, he was associated with the J. C. Penney Co. as a management trainee. He is a 1959 graduate of the University of Iowa.

## Semmes Stock Bought

MEMPHIS, TENN. — All of the Semmes Bag Co. stock owned by the late Joseph D. Crump, former president, has been purchased by the officers and employees of the company.

Principal owners and newly-elected officers are Ralph D. McDowell, president and manager; Burt Paynter, vice president, and C. E. Watson, secretary-treasurer.

Mr. McDowell joined the company in 1950 after graduation from Memphis State University. Since the death of Mr. Crump last May, Mr. McDowell has served as vice president and general manager.

Semmes Bag was organized in 1945 by the late Thomas J. Semmes and Mr. Crump. The firm has been doing an annual business in excess of $3½ million. The firm prints and manufactures textile bags for feed and other commodities.

## Elected Vice President

PROVIDENCE, R.I. — Lyndus E. Harper was elected a vice president of B-I-F Industries, Providence, at a recent meeting of the board of directors. B-I-F manufactures blenders, meters, feeders and controls for materials in motion.

Mr. Harper has been associated with the firm since 1944 when Omega Machine Co. became a part of B-I-F Industries, and retains his position as president of Omega in addition to his new duties.


4 Ways Cooper Gets Customers for its Dealers

1. Aggressive, tested promotions and day in and day out advertising in leading farm media.
2. A unique, planned cooperative advertising program to sell you as a Cooper dealer.
3. Sales training and sales help in your territory.
4. Extra Bonus S & H Green Stamps — a terrific plus.

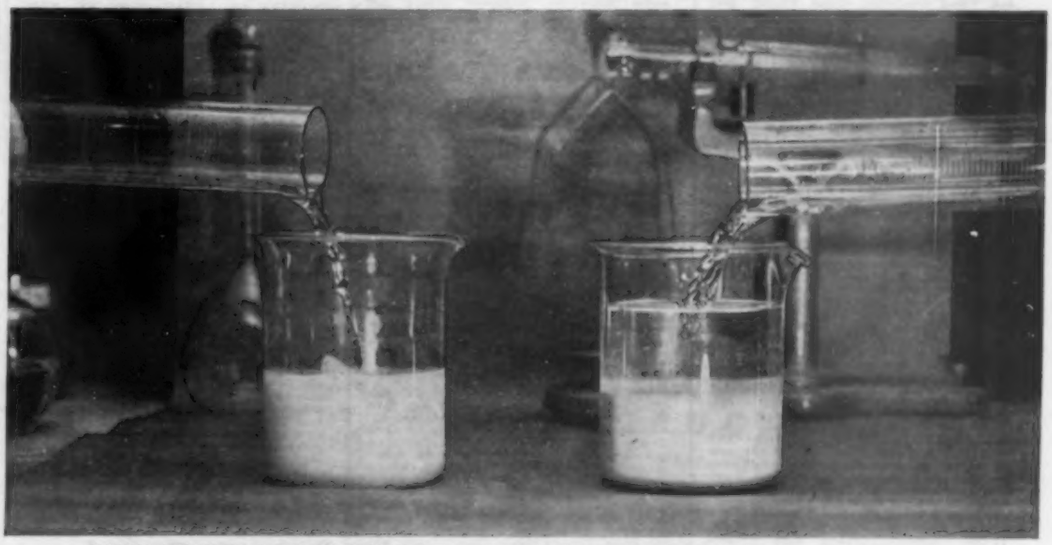
Get the full story on franchises available

Laboratory Tested Flavor Sealed

Cooper Feeds

O. A. COOPER COMPANY Humboldt & Beatrice, Nebraska

New from Carey Research: Ev'r-Flo Salt



WONDER WHERE THE WATER WENT? On the left, water has dissolved some of the salt and soaked down between the salt crystals of ordinary salt. On the right, the water stays on top—new Carey Ev'r-Flo Salt is not dissolved nor does the water penetrate between crystals. The next step in this test is even more startling. See details below.

A Carey first...engineered to cut feed mixing costs

Even under the extreme conditions pictured above, new Carey Ev'r-Flo Salt *flows!* When the water is poured off, you will see! This unusual flowability is the reason why Carey Ev'r-Flo cuts your costs in unloading, storing and mixing. It virtually eliminates caking, lumping and bridging.

Your savings can begin even before Carey Ev'r-Flo enters your plant—you may get a reduction of 10% or more in unloading time. Next, you can increase your salt storage capacity without spending a penny. You can put about 125 tons of Carey Ev'r-Flo in a space usually filled by only 100 tons of ordinary salt. Flowability and higher density makes the difference!

Save salt too. A special process developed by Carey Research makes Carey Ev'r-Flo unusually slippery, free-flowing and "water resistant." Less additive is required, so Carey Ev'r-Flo is actually a "saltier" salt . . . each ton goes further.

Carey Ev'r-Flo is the ideal salt for today's automatic feed mill equipment. You "push the button" and Ev'r-Flo *goes*. There's less dust, less caking, lumps, and bridging in equipment . . . and Carey Ev'r-Flo disperses quickly and uniformly through the other feed ingredients.

ONE 40-TON ORDER WILL CONVINCE YOU! If this first 40-ton (hopper car) load doesn't flow free and easy, your money will be refunded. Carey Ev'r-Flo Salt is now available in the 22 states where Carey Farm and Industrial Salt is sold. Order today and start saving with Carey Ev'r-Flo.

Have this Carey Ev'r-Flo Salt test, (pictured left) made right in your own office by a Carey representative without cost or obligation. Just phone or write the sales office nearest you (Atlanta, Denver, Ft. Worth, Omaha, St. Louis, Kansas City or The Carey Salt Company, Hutchinson, Kansas.

◀ Paul V. Imes, Director of Carey Salt Research

CAREY

THE CAREY SALT COMPANY • Hutchinson, Kansas

Fleischmann's F·I·D·Y IRRADIATED DRY YEAST RICH IN VITAMIN D FOR FOUR-FOOTED ANIMALS

# ☆ Classified Ads ☆

Classified advertisements received by Tuesday each week will be inserted for the issue of the following Saturday.
Rates: 20¢ per word; minimum charge $3.00. Situations wanted, 15¢ a word; $2.25 minimum. In figuring cost of your classified ad . . . each word, abbreviation, telephone exchange and number, set of initials, or group of figures counts as a word. To the number of words in your want ad itself add six (6) words for your name and address or name and address of your firm. This applies for both direct-reply ads and for blind ads containing a box number. If an ad is keyed, care of Feedstuffs, 25¢ per insertion additional charged for forwarding replies. Commercial advertising not accepted in classified advertising department. Display advertising accepted for insertion at minimum rate of $13.00 per column inch. No discount on ads ordered for more than one insertion.
All Want Ads cash with order.

## MACHINERY FOR SALE

**12½-TON TOLEDO DIAL SUSPENSION** hopper scale, like new, 32 inch dial, Model 2600. O. W. Meyer, Napoleon, Ohio.

**CALIFORNIA CENTURY PELLET MILL,** complete with 220-440 motors and 440 starter. Address Ad No. 5711, Feedstuffs, Minneapolis 40, Minn.

**WHIRLAWAY AIRBLAST CAR LOADERS,** cast iron pulleys, new and used feed and elevator equipment. Hagan Mill Machinery, P.O. Box 674, Jefferson City, Mo.

**CHAMPION MOBILE GRINDER AND** mixer units. Champion Portable Mill Co., 2105 Como Ave. S.E., Minneapolis 14, Minn.

**FEED MIXER, 1-TON CAPACITY,** guaranteed first-class throughout, 5 H.P. motor drive. Address Ad No. 5479, Feedstuffs, Minneapolis 40, Minn.

**MELO'S PORTABLE MILL, MIXER AND** sheller, 13,000 miles on truck I.H.C., 627 hours on diesel motor. Motor 2½ years old. Good condition. Claud Piland, Box 186, Crossville, Ill.

**30 H.P. CALIFORNIA MASTER, 50 H.P.** California heavy duty and various sizes of dies for both mills. Address Ad No. 5700, Feedstuffs, 612 Board of Trade Bldg., Kansas City 5, Mo.

**BAR-NUN ROTARY SIFTER, 10-TON CA**pacity. New and used 10 days. For feed dressing or pellets and crumbles. Greeley Mill & Elevator, Greeley, Iowa; Phone 2294.

**ONE TON CASCADE VERTICAL FEED** mixer with motor and roller bearings. May be seen daily. Evenings and weekends by appointment. A. F. Bright, Wrightstown, N. J.

**FOR SALE—NEW CLIPPER 29D WITH** screens and Forsburg scarifier. Used 20 roll velvet roll, good condition. All with motors. Located Wichita, Kansas. Kellogg Bros. Feed & Seed, 818 West Douglas, Wichita, Kansas; Phone AM 22601.

**FOR SALE—1950 MODEL BUCKEYE** streamliner incubator. Complete with latest type humidity system. Also two hatchers. Can make prompt shipment. Phone or write Harold Attebery, Granville, Ohio.

**WILL SELL TO HIGHEST BIDDER—ONE** 1950 H & L mobile feed mill, in top condition, 6 months old, 10,000 miles, can be seen in Roanoke, Va. Eastern Agri-Business Corp., 732 First Street S.E., Roanoke, Va.; Phone DI 4-5889.

**FOR SALE—ONE BULK FEED TRUCK.** 12-ton capacity. Heavy duty chassis. 1953 ACF-I.H. 18 ft. bulk and bag body. Pneumatic unloading. 30" belt down the center. Excellent condition. Call or write: Central Soya Co., Fort Wayne, Ind.; Phone A-2441, Extension 324.

**TWO MOBILE MILLS, ONE HAS 471** G.M.C., 120 H.P. diesel and 25 inch Industrial mill on International cab-over. Other has 90 H.P. gasoline unit and 17 inch industrial mill. Also separately clutched roller mill on Ford cab-over. Both have 2-ton mixers and are in excellent condition. Diesel $8,950, gas unit $6,450, with written guarantee. Call Advance Farm Service, Clinton 6-4266, at Madison, S. D.


**FOR SALE**

**Feed and Grain Handling and Processing Equipment**

***NEW & USED***

**Scales, Hammermills, Feed Mixers, Sewing Machines, Elevators, Pellet Mills, and Grain Cleaners**

**E. H. BEER & CO., INC.**
**Ibsen Ave. & Newkirk St.**
**Baltimore 24, Md.**



***NEW EQUIPMENT GREATLY REDUCED***

**Pakmaster PM30 bulk truck 7¼ ton cap. on new 2-ton Ford chassis. Howes 3-ton Vertical Mixer, Jr. Seed Cleaner, No. 3 Snappy Shaker. All sizes new crimpers in stock. "NEAR NEW EQUIPMENT" two Hammer Mill Motors 100 H.P., G.E. 3,600 r.p.m. open, 75 H.P. Howell 3,600 r.p.m. TEFC; two rebuilt guar. 30 H.P. California Master Pellet Mills, one 40 H.P. Heavy Duty, three Richmond Gyro Whip Sifters, two Allis-Chalmers Le Head, Hughes 60 H.P. Hammer Mill and Motor AA-1; several used oat crimpers and corn rolls, scales, sewing machines, fans, feeders, new and used rolls. Many other items. Ship any item on approval.**

**ROSS, INC.**
**12 N.E. 29th St., Oklahoma City, Okla.**


## MACHINERY FOR SALE

**SALE — SPROUT-WALDRON 335 CU. FT.** horizontal ribbon mixer. Type 304 stainless steel dry material handling installation, including: 1,800 cu. ft. weigh hoppers, bucket elevators, shake and screw conveyors, etc. Perry, 1403 N. 6th St., Philadelphia 22, Pa.

**JAY BEE NO. 3 UX MILL WITH 60 H.P.** 3,600 R.P.M. motor with base, coupling, magnet, good condition, also model 216 Bauer mill for use with 50 or 75 h.p. motor 1,800 R.P.M., available immediately. Write or phone Harold Attebery, Granville, Ohio.

**TWO MS600 CUMMINS TURBODIESEL** engines, 160 H.P. New, not surplus, with either clutch direct P.T.O. or 3 to 1 reduction gear, water cooled, manifolds for dusty conditions. Reduced price to $3,500. Flowers Equipment Co., Box 247, San Marcos, Texas.

**FOR SALE—ENCLOSED MOTORS;** Richardson scale; truck scales; hammermills; oat crimpers; horizontal and upright feed mixers; sewing machines; elevator legs; screw conveyors; molasses mixers and pellet mills. J. E. Hagan Mill Machinery, Box 674, Jefferson City, Mo.

**MELOS MILL AND MIXER WITH MO**lasses and powered by Ford industrial engine in real fine shape and reasonable price. 1954 Daffin mounted on 1954 Chev. truck with hydraulic equipment — $650. Myers-Sherman 16" stationary Fords mill. Mooers Mfg. Co., Windom, Minn., Phone TEmple 1-2644 or Mid-States Mill Machinery, Omaha, Neb.; Phone WAlnut 5183.

**100 H.P. ACE SPROUT-WALDRON PEL**let mill, complete with motor, coolers, pneu-vac air system; 60 H.P. Sprout-Waldron pellet mill and cooler; 50 H.P. heavy duty California pellet mill; 5-ton S. Howes Eureka horizontal mixer, with silent chain drive and 40 H.P. motor. Call or write J. E. Hagan Mill Machinery, P. O. Box 674, Jefferson City, Mo.; Phone 6-2197.

## HELP WANTED

**WANTED—SALESMAN FOR SOUTH CARO**lina. Sell complete line poultry and livestock products. Best lines in business. Excellent potential for man willing to work. Draw and commission. Send photo, experience and references in first letter. Address Ad No. 5736, Feedstuffs, Minneapolis 40, Minn.

**MAJOR MANUFACTURER OF BULK FEED** delivery units needs aggressive, personable salesman to sell in central Midwest territory. Locate around mid-Illinois. Salary plus commission. Car and travel expenses furnished. Paid vacation, insurance program, and other fringe benefits. Feed industry, truck or comparable sales experience desirable. Address Ad No. 5684, Feedstuffs, Minneapolis 40, Minn.

## SITUATIONS WANTED

**DESIRES EQUIPMENT SALES POSITION.** Experienced all phases milling industry. College graduate. Address Ad No. 5706, Feedstuffs, Minneapolis 40, Minn.

**EXPERIENCED INVESTIGATOR-PERSON**al contact survey services by competent feed specialist, recording new products and equipment potentials. Address Ad No. 5702, Feedstuffs, Minneapolis 40, Minn.

**EXPERIENCED FEED EXECUTIVE,** 10 years' complete charge of plant. Experience also includes department head of purchasing, sales, production, traffic, labor relations and office. College graduate, will relocate, salary open. Address Ad No. 5728, Feedstuffs, Minneapolis 40, Minn.

**NUTRITIONIST—THOROUGHLY EXPERI**enced in all types of feed formulation. Well versed in plant problems related to quality control and production. 25 years' experience as feed and flour chemist. Available immediately. Address Ad No. 5734, Feedstuffs, Minneapolis 40, Minn.

**NUTRITION POSITION SOUGHT. MAN** receiving Master's degree in animal nutrition in June desires position in animal feed industry. Three years' experience on university animal husbandry staff in animal nutrition research. C. D. Gaddy, Jr., A. H. Department, University of Tennessee, Knoxville, Tenn.

**SALES MANAGER—SIXTEEN YEARS' DI**versified experience with products, equipment and services relating to feed and food production. College graduate. Strong in service-sales planning, using practical research in developing new marketing techniques. Can do real job for aggressive firm. Address Ad No. 5731, Feedstuffs, 141 West Jackson Blvd., Chicago, Ill.

## MACHINERY WANTED

**WANTED—3-TON VERTICAL MIXER IN** good condition. (Preferably Bluestreak.) Belstra Feed Mix Sales, DeMotte, Ind.

## MACHINERY WANTED

**ALL KINDS OF GOOD USED GRAIN** processing machinery. E. H. Beer & Co., Inc., Baltimore 24, Md.

**WANTED—ONE (3-TON) NO. 548 HOWES** Eureka mixer, without motor. O. W. Meyer, Napoleon, Ohio.

**WANTED—GOOD USED SUNCURED AL**falfa meal packer for ¼" grind in burlap. State location and price. Consolidated Mills, Inc., Box 5, Bilisfield, Mich.

**WANTED TO BUY — RICHARDSON** scales, bag closing machines and other good mill, feed and elevator equipment. J. E. Hagan Mill Machinery, Jefferson City, Mo.

## BUSINESS OPPORTUNITIES

**WANTED—TEXAS FEED MILL, RADIUS** 100 miles Ft. Worth. Lease—option to buy. P. O. Box 9217, Ft. Worth, Texas.

**FOR SALE OR LEASE—10,000 BU. ELE**vator and land—on railroad siding at Sioux Falls, S. D. Includes new modern office—basement overhead bins—40x100 warehouse—½ block from main road to Morrell packing plant. Adjoining warehouse 30x200 can be leased or bought. Contact W. E. Unke, Bridgewater, S. D.

**FOR SALE — ALFALFA MILL LOCATED** in finest alfalfa area. McGeehee drum modified to get 3 tons per hour. California pellet mill (Century) used two seasons, gas generator for gas storage. Complete plant with field equipment, located on railroad siding. Contact Dan McDonald, Clare, Mich.

**FOR SALE—SMALL, BULK, PUSH BUT**ton feed mill, capacity up to 15 tons per hour, one man operation. Feeding 750,000 broilers, 50,000 BBB turkeys annually, under contract with large company. Area offers unlimited potential. Write Grandlake Grain Co., Fairmont Road, Vinita, Okla.

**FOR SALE—WELL ESTABLISHED GRAIN** and feed business. Includes steam grain rolling and mixing, cleaning and treating seed plant, bulk feed, good line of sacked feeds, government grain storage, three trucks, pickup, fertilizer spreaders and beautiful garden center. In center of rich irrigated, ranching, and wheat area, potential unlimited. Write L. D., 1920 Del Mar Parkway, Denver, Colo.

## *Pilch Distribution Center Is Opened*

SMITHFIELD, N.C.—Chester W. Pilch, president of Pilch's Poultry Breeding Farms, Inc., has announced the opening of a new hatchery distribution center at Smithfield, which will operate in conjunction with the firm's Talladega, Ala., farm.

This makes the third truck delivery center for the company. Other plants are at Talladega, Ala., and Hazardville, Conn.

Mr. Pilch said the firm will now be able to serve the entire eastern half of the U.S. from Canada to Texas and the Gulf of Mexico with truck delivery of breeder pullets to hatcheries producing broiler type chicks.

## Buckeye Appointment

SPRINGFIELD, OHIO — Robert M. Levi has been appointed assistant sales manager and advertising manager, according to Jack Hill, vice president in charge of sales, Buckeye Incubator Co., Springfield.

Formerly a sales assistant, Mr. Levi will be concerned with the firm's full line of products and will be headquartered in the home office. He also will be responsible for all advertising and sales promotion activities and will plan and direct all Buckeye convention and trade show functions.

James R. (Jim) Miller, who formerly handled these duties and most recently has been assistant to the executive vice president, B. M. Riker, is assuming other general management responsibilities in the company.

## Named to Ralph Wells Board of Directors

MONMOUTH, ILL.—Appointment of Max E. Stults to the board of directors of Ralph Wells & Co., Monmouth, has been announced by Ralph Wells, president. Mr. Stults is presently general manager of the Pet Foods division.

M. E. Stults

Mr. Stults joined the Wells organization in 1956, handling sales and special assignments at the firm's plants in Monmouth, Ill., and Janesville, Wis. Prior to this he was active in the pet food industry through association with Albers Milling Co. plants in California, Oregon and Wisconsin, and Acme-Evans Co., Indiana. He has also served as an assistant county agent at Hancock County, Indiana.

Mr. Stults served one year as a member of the Pet Food Institute's first board of directors and on the institute's state and federal regulations committee.

## Arkansas Program To Include Mill

EL DORADO, ARK. — The rapid expansion of the poultry production program here in 1960 will include a $50,000 feed mill that the El Dorado Industrial Development Corp. has arranged for in cooperation with the Western Hatcheries, Inc., Dallas, Texas.

Plans are being completed for "the most expansive broiler production program in the history of south Arkansas," according to the industrial group at El Dorado. The group will finance a $300,000 broiler housing construction project which will guarantee facilities for the production of 360,000 birds in each raising period. Poultry farms will be financed by the local industrial group and will be leased to farmers.

Processing will be handled by the J&M Poultry Co. of El Dorado. As the one-time production of 360,000 birds in the El Dorado area will provide close delivery from poultrymen in Union County, the plant can prepare and pack 10 million broilers annually, officials say.

## Elevator Construction

TOLEDO, OHIO—Genoa's planning board approved unanimously a permit for construction of nine grain elevators in the village by the Farm Bureau Cooperative Assn., Inc., Columbus.

The elevators will be built at an estimated cost of $230,000 near the New York Central System tracks, west of the Farm Bureau's present elevator at West and Eighth Sts.

Although the Columbus parent organization will finance the venture, it is understood that the elevators will be leased to the Ottawa County Farm Bureau Cooperative Assn.

## *Building Feed Mill*

CLARION, IOWA — Construction has started on the new $150,000 "push-button" feed mill at Clarion (Iowa) Farmers Elevator Cooperative Co. Woods Mill Service, Inc., Fort Dodge, Iowa, is the designer and builder.

The new feed mill will have an electrical control system which will permit mixing ground grains at the rate of 20-25 tons an hour. Bulk bins over the driveway will permit high speed loading of bulk feeds to feeders.

The 50-year-old wood grain elevator has been torn down. The old mill will remain as a warehouse for bagged feeds.

**GRAIN CAR UNLOADER—This is the new grain car unloader to be manufactured soon by the Superior Co., a division of the Superior Separator Co., Hopkins, Minn. The machine is expected to be in production by June 1.**

## Superior Co. to Make New Car Unloader

HOPKINS, MINN.—A new flexible mechanical conveyor, electrohydraulically operated by one man, for unloading of bulk grain cars will be soon made available to elevators, processing plants and flat storage facilities, according to an announcement by C. F. Pierson, president of the Superior Separator Co.

A division of the firm, the Superior Co., will manufacture and market the equipment nationwide. Units are expected to be in production by June 1.

"Counting time for spotting box cars over track hopper, removing grain doors and cleaning up residual grain, this equipment unloads at the rate of four cars per hour using two tracks," Mr. Pierson said.

"The new Superior Boxcar Unloader will cost in the neighborhood of $25,000 to $30,000 installed," he said. "Currently, most elevators and mills receiving grain at this rate employ a cradle or piston-type car dump which requires a huge pit with machinery below the railroad track level. Cost of this type of installation ranges from $125,000 to $300,000, depending on installation costs.

"No modification of plant facilities, spotting trackage or receiving and conveying equipment is necessary," he went on.

The unloader is suspended from an overhead monorail that is projected into the open car door once the grain doors have been removed. It consists of folding conveyor wings the width of the car—one for the right side and one for the left—with each section separately actuated as required. These sections, with slat type conveyors, feed the grain simultaneously from both ends of the car toward the door and into the track hopper. When the car is empty, the sections are retracted by folding back on themselves and the unit backs out self-propelled on its monorail and is ready for the next car, Mr. Pierson said.

The equipment is 5 ft. wide by 11 ft. long and 7 ft. high. It weighs 5,000 lb. The units can be moved bodily on a flat bed truck into the plant for maintenance.

Three of these models have been successfully undergoing operational tests at the General Mills Elevator A Seaport Terminal in Duluth, Minn., according to Mr. Pierson. Other equipment has been installed at Decatur, Ill., and is being installed at Seattle, Wash.

The machine was developed by Victor Anderson, now manager of the General Mills Terminal Elevator at Duluth.

## New Grain Companies

STOCKTON, CAL.—As an outgrowth of the former Eales-Young Grain Co., two new organizations appear in the grain business for the California Central Valley area.

Doing business as the F. B. Young Grain Co. is Francis Young, former partner in the Eales-Young firm. Yolland Johnson, experienced field man, will be associated with the new firm. The F. B. Young Grain Co. will remain in the same location as the former partnership.

The other new grain firm to open in Stockton is Eales Grain Co. G. L. (Luke) Eales has been associated with the grain business on the Stockton waterfront for the past 21 years. He is vice president of the Stockton Grain Exchange and director of the California Hay, Grain and Feed Dealers Assn.

Ed Rice, a field man from the former partnership, will continue with Luke Eales in the new firm. The offices will be located at 44 West Weber in Stockton.

Eales-Young Grain Co. dissolved partnership March 1, 1960.

## Arkansas Plan to Cut Condemnations Set

LITTLE ROCK, ARK.—A plan designed to lower the percentage of broilers condemned in Arkansas has been worked out by the Arkansas Poultry Federation and the Arkansas Poultry Processors Assn., along with the Arkansas Poultry Exchange, according to a federation report.

A committee of the Arkansas broiler industry will work with the Livestock Sanitary Board to put into operation two mobile poultry diagnostic labs affiliated with two permanent labs in Russellville and Springdale. These mobile labs will be staffed by a veterinarian and lab technician and will work at the various processing plants.

It is hoped that the Livestock Sanitary Board veterinarian, working with the government inspectors and the state veterinarian, will then be able to work with growers and servicemen to prevent similar high condemnation problems from arising in the future by correcting the problem before the birds reach the processor.

The plan was submitted and adopted at a meeting at the University of Arkansas. Attending the meeting at the university were representatives of the inspection service of the U.S. Department of Agriculture, the Arkansas Livestock Sanitary Board, the University of Arkansas, the Agricultural Extension Service and the Arkansas broiler industry.

**BLUE RIBBON EGGS—A "blue ribbon breakfast" was assured George Docking, Kansas governor, as representatives of the state Poultry Improvement Assn. presented to Mrs. Docking a grand champion dozen from the Marysville Egg Basket Fiesta. The eggs, submitted by a seven-year-old farm girl, won over more than 100 other entries including many from top area commercial producers. The eggs were bought at auction for $155 and presented jointly by (left to right) Ernest Dowell, DeKalb Agricultural Assn.; M. E. Rudolph, Nutrena Feeds, and Gerald Tallent, Best Yet Foods, Inc.**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- Mud Flaps
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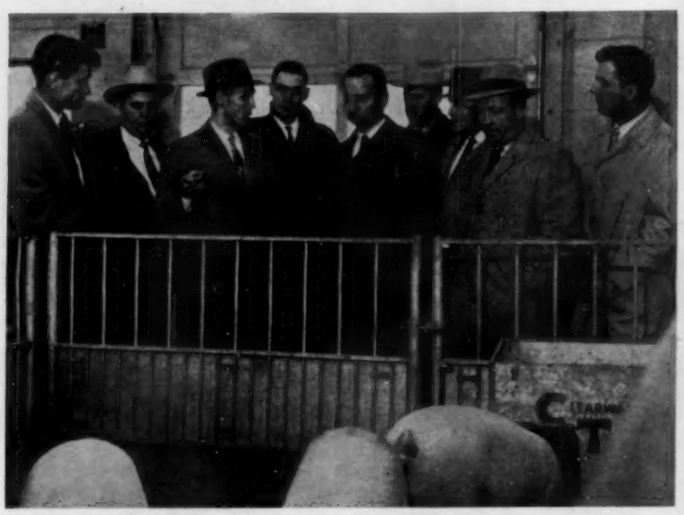
# Camera Views of the News

SPEAKERS—Beef, sheep and dairy section speakers at the 1960 Virginia Feed Convention and Nutrition Conference in Roanoke included (left to right): Dr. J. P. Fontenot, Virginia Polytechnic Institute; Dr. William H. Hale, Chas. Pfizer & Co., Terre Haute, Ind.; Dr. R. W. Engel, VPI; W. G. Ritchie, Petersburg, Va., presiding officer; Dr. C. E. Howes and Prof. Paul M. Reaves, both of VPI; R. L. Barnett, Roanoke; Earl Mitchell, Alabama Flour Mills, Decatur, Ala.; Prof. Reaves; Dr. J. K. Loosli, Cornell University, and Dr. Eric W. Swanson, University of Tennessee.

ADA PRESIDENTS—Ralph F. Beermann, Beermann Bros. Dehy., Dakota City, Neb., outgoing president of the American Dehydrators Assn., (center right) congratulates J. M. Schrum, Sugarland Industries (Texas) on his appointment to the presidency of ADA. In the background are former presidents of ADA who attended the convention at the Broadmoor Hotel in Colorado Springs. They are (left to right): Joseph Chrisman, former president and now executive vice president of ADA; Loyd M. Faris, Archer-Daniels-Midland Co., Kansas City; Kenneth Morrison, Morrison & Quirk, Hastings, Neb.; L. J. Schiller, Hayward, Inc., Oak Harbor, Ohio; Ervin E. Burkholder, Nebraska Farm Products Co., Cozard, Neb.; John Caple, A. B. Caple Co., Toledo, Ohio; Ray E. Bert, Bert & Wetta Sales, Inc., Maize, Kansas; H. G. Moeller (in front), Sioux Alfalfa Meal Co., Vermillion, S.D., and Robert Pharo, Keystone Dehydrators, Nazareth, Pa.



SALES TRAINING—Eli Lilly and Co.'s agricultural salesmen recently completed a sales training program at the company's headquarters in Indianapolis, Ind. Reports of research in progress at the firm's new agricultural research center were among the topics discussed. Here, salesmen listen to Dr. C. E. Jordan, head of swine nutrition research, explaining an experiment in progress. Salesmen and their headquarter states are (left to right): Walker Jacobs, Colorado; J. S. Lay, California; Dr. Jordan; Robert Gaylord, Indiana; W. C. Nickel, Iowa; R. M. Book, Kansas; A. J. Harless, Illinois; W. C. Fish, field manager, and J. Nelson Jay, Maryland.

SEMINAR—Shown (left to right) are Crete Mills executives who conducted a seminar covering dealer training, advertising and sales promotion at Lincoln, Neb., recently: Ben McDowell, sales supervisor; Elvin Schultz, director of nutrition and research; C. H. O'Brien, general sales manager, and H. E. Mooberry, sales supervisor. The seminar was attended by Victor Feed dealers from seven states, and special awards were given to dealers who achieved 1959 sales goals.

ADA SPEAKERS—Speakers on the American Dehydrators Assn. convention program in Colorado Springs included (left to right): Dr. H. R. Bird, University of Wisconsin; Dr. R. O. Nesheim, Quaker Oats Co., Barrington, Ill.; Dr. Francis H. Bird, Eastern States Farmers Exchange, Inc., West Springfield, Mass., and Frederick Pfaff, Balfour, Guthrie & Co., Fresno, Cal.

FORUM SPEAKERS—Speakers at the University of Illinois Agricultural Industries Forum are shown (left to right) pausing for a short discussion before taking the speakers' platform for a special session on transportation problems in grain marketing: Dr. A. T. Hieronymus, professor of agricultural marketing, University of Illinois; H. N. Johnson, general traffic manager, Ralston Purina Co., St. Louis; John C. Winter, Agricultural Marketing Service, U.S. Department of Agriculture; C. J. Lessing, Chicago Board of Trade, and K. J. Maltus, A. E. Staley Manufacturing Co., Decatur.

DANNEN OFFICIALS—Executives of Dannen Mills, Inc., St. Joseph, are shown as the firm celebrated the 25th anniversary of its entrance into the feed business recently at a civic luncheon in St. Joseph. Left to right are George Lines, vice president, production; Ed Gumbert, vice president, grain and jobbing; Edna Dawson, secretary and assistant treasurer; Fred Woelffing, vice president, administration; Bob Waite, vice president, feed, and Dwight L. Dannen, president.

## STORMS

(Continued from page 1)

baby chicks are saved from death in Arkansas as a Navy emergency unit generates electricity that had been supplied by power lines before they were deadened by a storm's wrath.

These signs of disaster proved that late-winter blizzards haven't gone out of style in the South and East and the evidence of what such abnormal storms can do and have done to the producers—many of them feed manufacturers and dealers—and processors of poultry.

In addition to being involved in the storm-caused situation broiler growers, feed manufacturers and dealers have been affected in other respects, too. For instance, a Ralston Purina dealer in Delmarva said that in a number of instances bulldozers had to be used to make a path from a main road to a broiler-grower's bulk feed bins. This dealer estimated that from 5-10% of his mill's production went into bags, and farmers drove tractors and wagons out along the road and picked up the bagged feed.

He reported, also, that drivers hauling feed were out after midnight several nights in an attempt to get feed to growers who were running short on supplies.

**Third Storm Hits**

A third storm roared into the Southeast this week and played havoc with the north Georgia poultry area. Blanketed in snow up to 10 in. deep in some sections, the broiler-producing counties of north Georgia were hit with the worst storm in many years. Damage was estimated to have reached several million dollars. Several hundred broiler houses were reported to have collapsed under the weight of snow which followed several days of sleet and freezing rain.

The National Guard was called out in efforts to help feed broilers and to move them to market. Most roads were impassable and traffic was ground to a snowbound halt.

Governors of Georgia and Alabama asked the federal government to declare hard-hit counties of their states as disaster areas, thus enabling poultrymen to secure long-term, low-interest loans. Georgia's governor, Ernest Vandiver, asked that 21 counties in north Georgia be provided relief.

Market authorities in both Delmarva and the Southeast said offerings of broilers would not meet demands. In Georgia, prices remained firm at 18@19¢ lb. Broiler prices in Delmarva dropped slightly because, as one spokesman said, it was believed that processors were not bidding on birds where it would be difficult to load them.

It was reported that producers stood by with tractors to help trucks, loaded with broilers, move on to market. One buyer in Delmarva said that of the normal movement scheduled to leave farms during a three-day period, only half of the birds were removed from the houses.

**Processors Have Problems**

Processors have been having troubles, too. Most of Delmarva's plants kill birds directly from the delivery truck. The trucks are scheduled to arrive at the plant so the killing line can be kept moving. But when trucks were stuck and did not show up, the lines had to be stopped.

Nearly all plants were closed at one time or another, either because of a shortage of birds or because employees, most of them living in rural areas, were unable to get to work through snowdrifts.

Hatcheries were reported to have had difficulty in getting birds out to farms. However, in Delmarva for instance, northern egg trucks making deliveries of eggs to hatcheries were able to get through.

In Georgia, Lumpkin, White and Hall counties, apparently, were hit the hardest by snow, sleet and freak winds. Damage in those areas was estimated at more than $1 million. Poultrymen lost thousands of birds as 200 or more poultry buildings collapsed or were damaged less severely under the weight of heavy ice and snow or because of strong winds. Poultry deaths are expected to mount because of disease and starvation.

**Damage in Carolinas**

Damage was heavy in some North and South Carolina areas. One firm in Belton, S.C., was reported to have lost three houses with a total capacity of 12,500 broilers and 1,700 commercial layers. In addition, 10 of the firm's contract growers also lost poultry houses and hundreds of birds.

An Asheville, N.C., feed company reported that 11,000 birds were in a broiler house that collapsed, and most of them were killed. An additional 20,000 broilers died because of low temperatures.

In an effort to save what remained of their flocks, some north Georgia growers put out smudge pots as the temperature dipped to a low of 23°. But even the smudge pots brought destruction to some, according to newspaper reports. At least two large chicken houses caught fire from the smudge pots, burning to death hundreds of birds.

When the first-week-in-March sleet and snow storm struck south Arkansas, $20,000 worth of eggs in incubation and 25,000 baby chicks at a Camden, Ark., hatchery were suddenly endangered when ice-laden power lines snapped.

An emergency generator was quickly borrowed from the Camden Navy plant to provide electricity to operate heating units. The chicks and eggs were saved.

High winds shipped snow through cracks in Delmarva broiler houses. It was said that drafty conditions could result in disease outbreaks. Many Delmarva growers found it very difficult to keep small chicks warm.

Movement of broilers in Delmarva had almost gotten back to normal when more snow fell March 9 and 10. Snow and ice closed many Delmarva roads. High winds reclosed the roads as quickly as snow plows opened them.

## Hay Processing Plant

AURORA, ORE. — A third hay processing plant for western Oregon opened near here March 1. The mill is located on the Ogden Mira Monta Farm.

C. Ogden said the plant will manufacture "anything available in a haybase ground feed with any percentages of any additives and complete balanced 'all-ration' feeds for any class of livestock that eats some hay."

## PURINA

(Continued from page 8)

only two or three days' supply will be left with the retailer, he said.

Only top grade (AA) eggs are to be marketed in the program and in two sizes only—large and extra large.

A Northland Egg Producers spokesman said that producers will be paid a price which is 1¢ per dozen under the Chicago market; this is above the normal Madison area price. Profits made by the company, it was indicated, will be paid in the form of a dividend to the producer at the end of the year.

The eggs will be sold in a special carton with a checkerboard on it and a seal saying "Purina Premium Seal Eggs."

Currently the egg corporation is handling 400 cases a week and is just beginning to carton the eggs, a company spokesman said. "We will need more than that, however," it was pointed out. More producers are expected to take part in the program, but the corporation membership will likely be made up of the original 14.

Headquarters of the new egg firm are at the farm of Harry Peck, a Purina dealer.

Purina dealers in the area are providing the feed. Producers within about a 50-mile radius of Spring Green are taking part in the program. Spring Green is 40 miles from Madison.

## W. E. Root Named to Head Cash Grain Unit

KANSAS CITY—Warren E. Root, Root Grain Co., Kansas City, was re-elected president of the Federation of Cash Grain Commission Merchants' Assn. at the annual meeting of the organization here March 7 during the convention of the Grain & Feed Dealers National Assn.

Lyle Patterson, Benson-Quinn Co., Duluth, and Jerry Vanice, Vanice Grain, Inc., Omaha, were named vice presidents, and Robert Graham, Graham Grain Co., St. Joseph, was chosen secretary-treasurer.

The group discussed various trade problems including freight rate changes, voting a resolution that railroad rates should be made competitive with other forms of transportation, but that piecemeal reductions of rates between various markets and destinations should be avoided by the carriers.

Mr. Patterson was named to represent the commission men on the board of the Grain & Feed Dealers National Assn.

## Chicks Placed in Principal Broiler Areas

(000's omitted)

| Week ending | Maine | Conn. | Penn. | Ind. | Ill. | Mo. | Del. | Md. |
|---|---|---|---|---|---|---|---|---|
| January 2 | 1,121 | 380 | 913 | 664 | 102 | 657 | 1,818 | 2,335 |
| January 9 | 1,144 | 429 | 946 | 809 | 130 | 745 | 1,940 | 2,428 |
| January 16 | 1,081 | 424 | 663 | 722 | 100 | 848 | 2,049 | 2,230 |
| January 23 | 1,082 | 357 | 656 | 665 | 94 | 895 | 1,884 | 2,245 |
| January 30 | 1,104 | 427 | 666 | 749 | 117 | 715 | 1,980 | 2,300 |
| February 6 | 1,063 | 422 | 805 | 787 | 120 | 822 | 1,925 | 2,261 |
| February 13 | 1,091 | 484 | 805 | 776 | 106 | 696 | 1,906 | 2,184 |
| February 20 | 1,079 | 415 | 784 | 802 | 131 | 742 | 1,987 | 2,024 |
| February 27 | 1,059 | 513 | 657 | 712 | 152 | 726 | 1,947 | 2,216 |
| March 5 | 1,190 | 466 | 709 | 770 | 112 | 727 | 1,934 | 2,158 |

| Week ending | Va. | W. Va. | N.C. | S.C. | Ga. | Fla. | Ala. | Miss. |
|---|---|---|---|---|---|---|---|---|
| January 2 | 1,112 | 440 | 2,956 | 368 | 5,983 | 190 | 2,862 | 2,267 |
| January 9 | 1,034 | 436 | 2,866 | 361 | 6,181 | 234 | 3,019 | 2,160 |
| January 16 | 1,086 | 471 | 2,847 | 342 | 6,319 | 200 | 3,153 | 2,207 |
| January 23 | 1,123 | 539 | 2,787 | 338 | 6,456 | 209 | 3,277 | 2,149 |
| January 30 | 1,128 | 500 | 2,823 | 369 | 6,765 | 172 | 3,280 | 2,420 |
| February 6 | 1,114 | 560 | 2,923 | 396 | 6,799 | 182 | 3,464 | 2,352 |
| February 13 | 1,220 | 470 | 3,074 | 381 | 7,019 | 183 | 3,365 | 2,482 |
| February 20 | 1,334 | 518 | 3,030 | 450 | 6,789 | 183 | 3,704 | 2,448 |
| February 27 | 1,343 | 457 | 3,174 | 409 | 6,833 | 219 | 3,834 | 2,281 |
| March 5 | 1,161 | 472 | 3,195 | 382 | 6,798 | 227 | 3,874 | 2,533 |

| Week ending | Ark. | La. | Texas | Wash. | Oregon | Calif. | Total 22 areas 1959-60 | Total 22 areas 1958-59 |
|---|---|---|---|---|---|---|---|---|
| January 2 | 3,334 | 355 | 1,759 | 287 | 255 | 1,046 | 31,173 | 31,704 |
| January 9 | 3,261 | 425 | 2,043 | 355 | 245 | 1,152 | 32,343 | 31,160 |
| January 16 | 3,450 | 428 | 2,133 | 320 | 275 | 1,033 | 32,381 | 30,074 |
| January 23 | 3,484 | 372 | 2,112 | 311 | 260 | 1,151 | 32,400 | 30,661 |
| January 30 | 3,578 | 383 | 2,248 | 378 | 230 | 973 | 33,305 | 31,664 |
| February 6 | 3,617 | 401 | 2,329 | 407 | 249 | 1,119 | 34,089 | 31,837 |
| February 13 | 3,874 | 364 | 2,333 | 385 | 207 | 1,131 | 34,576 | 32,970 |
| February 20 | 3,807 | 391 | 2,290 | 302 | 256 | 1,117 | 34,583 | 33,471 |
| February 27 | 3,855 | 390 | 2,262 | 288 | 252 | 1,066 | 34,645 | 34,068 |
| March 5 | 3,781 | 381 | 2,146 | 355 | 218 | 1,159 | 34,748 | 35,416 |

## Earl C. Corey, CSC Official, Resigns

WASHINGTON—Earl C. Corey, director of the Portland, Ore., regional office of the Commodity Stabilization Service, resigned Jan. 22, it was announced this week.

Mr. Corey, it is reported, is under investigation by both the justice department and the Senate special agricultural investigation subcommittee on "conflict of interest" charges.

Ezra Taft Benson, secretary of agriculture, said in a statement, "Jan. 14, my office was advised of certain facts relative to Mr. Corey. He was confronted with this information by an official of the department Jan. 16. The matter was then referred to the department of justice for investigation and appropriate action. Jan. 18, Mr. Corey elected to resign, effective as of the close of business Jan. 22."

Mr. Benson also said in his statement that making the charges against Mr. Corey public might "compound the difficulties of administering programs which call for the highest ethics in government service."

## RUBINOFF

(Continued from page 1)

benefit of the company's employees, customers and the economy of this area.

"The long-depressed state of the poultry industry," Mr. Goldman continued, "has been no secret to us who live outside of Greater Vineland. We have every reason to believe that under the stewardship of Mr. Rubinoff, coupled with our own experience, varied interests and keen sense of responsibility to the people of this community, a stronger poultry industry and more stable local economy will ultimately emerge."

Mr. Rubinoff declared that the merger of his company with Son-Mark Industries, as a wholly owned subsidiary, "will strengthen our hand and help us provide many new customer-directed benefits.

"On our planning board," he said, "are a number of new facilities that will give the egg producer a greater opportunity to survive and thrive during the sharp fluctuations historically associated with poultry and egg production."

Jacob Rubinoff Co. has been linked with the growth and development of southern New Jersey as one of the largest egg production centers in the country. In 1959, Atlantic, Cumberland, Cape May, Salem, Camden and Burlington counties accounted for some $50 million of the state's $130 million poultry industry.

Edward G. Rubinoff assumed general management when his father died in 1948. More retail outlets to the Vineland operation were started, and last year the firm's retail branch was transferred to the main plant.

The company has a fleet of trucks equipped for bulk delivery and mechanical poultry farm operations. The firm has no salesmen, and considers each outside representative as a poultry husbandry specialist whose "primary function is to provide on-the-farm management assistance and nutritional advice in rearing baby chicks, pullets and layers."

Some of Mr. Goldman's past and present activities include an association with Globe Wholesale Grocery Co.; founded the Giant Tiger market; operated supermarket; connected with Webb Meat Packing Co., headed Eastern Brokerage Co., Philadelphia, a meat and general food sales organization; helped organize Son-Mark Industries, which presently owns and operates Gold Seal Stamp Co., Philadelphia; Markson Furniture Co., Syracuse, N.Y.; General Business Services, a management consultant firm; F.I.C. Finance Co., Philadelphia, and Jacob Rubinoff Co.

# The FEED MARKET

PRICE QUOTATIONS, MARKET TRENDS
OF PRINCIPAL INGREDIENTS

**NOTE: Quotations on feed ingredients shown in these and adjoining columns are wholesale prices, per ton, bulk, for prompt delivery, unless otherwise noted. They are the latest quotations available from Feedstuffs correspondents and are not necessarily those in effect on date of publication. The prices represent fair average trading values and do not necessarily represent extreme low or high levels at which individual sales might have occurred. A descriptive summary of supply and demand factors prevalent in the feed market appears on page 2.**

### A AND D FEEDING OIL

**New York:** Demand fair; trend steady; supply ample; 1,500 A, 300 D 16¢ lb.; 2,250 A, 300 D 17⅛¢ lb.

**Boston:** Demand and supply steady; 400 D, 3,000 A 21⅛¢ lb.; 300 D, 3,000 A 21¢; 300 D, 2,250 A 19⅛¢; 300 D, 1,500 A 18¢; 300 D, 750 A 16¢; 75 D, 750 A 15⅛¢.

**Denver:** Demand fair; trend steady; supply ample; 2,250 A, 300 D 22¢ lb., f.o.b. Denver.

**Minneapolis:** Demand fair; supply ample; 10,000 A 34⅛¢ lb.; 300 D, 2,250 A 18¾¢ lb.; 300 D, 1,500 A 17⅛¢ lb.; 300 D, 750 A 16¢ lb.

**Chicago:** Demand fair; trend steady; supply ample; straight A feeding oil, with 10,000 units vitamin A per gram, 7@7¼¢ a million units of vitamin A, l.c.l., packed in 55-gal. drums, f.o.b. Chicago, drums included.

### ALFALFA MEAL

**Portland:** Demand slow; trend lower; supply ample; suncured, 15% $46; dehydrated $68.40.

**Los Angeles:** Demand fair; trend slightly weaker; supply more plentiful; dehydrated meal, 17% protein, 100,000 A $55@56; dehydrated pellet meal, 17% protein, 100,000 A $57@58; suncured meal, 15% protein $51@52; suncured crumbles, 15% protein $53@54.

**Memphis:** Demand fair; trend steady; supply scarce; dehydrated, 17% protein, guaranteed 100,000 units vitamin A $59, bulk.

**Boston:** Demand slow; supply adequate; dehydrated, 17% $67, sacked; suncured, 13% $46, bulk.

**Philadelphia:** Demand dull; supply fair; 17% dehydrated $68.50.

**Omaha:** Demand good; trend steady; supply ample; 17% dehydrated, 100,000 A units, bulk pellets $52; sacked meal $57, Omaha.

**Denver:** Demand fair; trend steady; supply ample; dehydrated $52, sacked meal; $49, bulk pellets.

**New Orleans:** Demand fair; trend steady; supply adequate; 17% protein, 100,000 vitamin A $65@66 bulk, $72@73 sacked.

**Ft. Worth:** Demand good; supply adequate on dehydrated; extremely light offerings on suncured for immediate delivery; sacked: dehydrated, 17%, 100,000 A $65.50 rail, $64@65 truck; suncured 13% ¼ in. grind No. 1 $46 truck; 15% fine ground dry $48 with 2% fat added, $50 rail or truck.

**Cincinnati:** Demand fair; trend steady; supply adequate; 17% dehydrated, 100,000 vitamin A $62@63.

**Minneapolis:** Demand slow; trend steady; 17% dehydrated, 100,000 units vitamin A reground pellets $57; oiled reground pellets $59.

**Kansas City:** Demand slow; trend steady; supply adequate; 17% dehydrated alfalfa, guaranteed 100,000 A on arrival, pellets $51@52 bulk, reground pellets $53 bulk; 18% dehydrated alfalfa, guaranteed 125,000 A on arrival, reground pellets $56 bulk; 20% dehydrated alfalfa guaranteed 150,000 A on arrival, reground pellets $63; suncured alfalfa, demand slow, supplies ample, 13% pellets $35@35.50 bulk, No. 1 ¼-in. $37@37.50, No. 2 ¼-in. $35 sacked.

**Chicago:** Demand fair; trend irregular; supply adequate; 17% protein, dehydrated, with 100,000 units vitamin A $57.50@58.50; 13% protein suncured $40.50@41.50.

**St. Louis:** Demand slow; trend steady; supply ample; suncured, 13% fine, sacked $44; dehydrated, 17%, 100,000 A, pellets, bulk $55.

**Buffalo:** Demand fair to poor; trend steady; supply fair; $71, sacked, Boston.

**Seattle:** Demand fair; trend steady; supply good; 15% protein suncured $50, delivered truck loads, sacked; 136,000 A unit dehydrated $72, delivered truck loads, sacked.

### ANIMAL FAT (STABILIZED)

**New Orleans:** Demand fair; trend easy; supply adequate; 5⅛@6¢ lb., tank cars.

**Boston:** Demand improved; supply fair; tallow 5¾¢ lb.; yellow grease 5¼¢ lb.

**San Francisco:** Demand fair; supply ample; bleachable fancy 6¢ lb.; yellow grease 4¾¢ lb.

**Ogden:** Supply good; $5.50 cwt.

**Louisville:** Demand fair; trend steady; supply good; bleachable white 5¾¢ lb., white tallow 6¢ lb., yellow grease 5⅜¢ lb., all in tanks.

**Ft. Worth:** Demand good; supply limited; prime tallow, tank cars 5⅞¢ lb.; drums 8⅜¢ lb., f.o.b. north Texas packing plants with returnable drums.

**St. Paul:** Export market keeping demand good; supply ample; bleachable fancy holding at 5½¢ lb., f.o.b. producer's plant, after a ½¢ increase last week.

**Atlanta:** Demand fair; trend steady; supply ample; 5¢ lb., f.o.b. Alabama and Georgia producing mills.

**Chicago:** Demand moderate; trend firm; supply ample; bleachable fancy tallow, tank, truck or carlots $5.62½ cwt., yellow grease $5 cwt.

**Kansas City:** Demand slow; trend steady; supply ample; prime stabilized tallow 5¼@5⅜¢ lb.

### BARLEY FEED

**Portland:** Demand improved; trend unchanged; supply ample; rolled $53, ground $51.

**Los Angeles:** Demand fair; trend easier; supply adequate; standard rolled $2.90 cwt., standard ground $2.90 cwt., both sacked.

**Boston:** Demand poor; supply ample; $49, sacked.

**Denver:** Demand and supply good; trend firm; rolled $2 cwt.

**San Francisco:** Demand fair; supply ample; rolled $61, ground $60.

**Philadelphia:** Demand dull; supply fair; $46.

**Ogden:** Supply ample; rolled $45@46; whole barley $40@41.

**New Orleans:** Demand slow; trend unchanged; supply adequate; $50@51, sacked.

**Baltimore:** Demand fair; trend easier; supply ample; $47.50, sacked.

**Chicago:** Demand quiet; trend easier; supply ample; $37, sacked.

**Seattle:** Demand fair; trend easy; supply good; $45, truck lots.

### BENTONITE (SODIUM)

**Denver:** Demand fair; trend slow; supply ample; $22.50, f.o.b. Denver.

**Cincinnati:** Demand steady; supply adequate; f.o.b. Cincinnati, minimum 30 ton carlots: 80 granular $31.50, less than carlots $40; 200 mesh fine $31, less than carlots $40.

**Chicago:** Demand fair; trend steady; supply ample; f.o.b. Wyoming and South Dakota shipping points: granular, 30 mesh $16.50; fine granular, 80 to 100 mesh $13.75; powder, 200 mesh $13.50, f.o.b. Belle Fourche, S. D., minimum 30-ton carlots, 80 granular $13.50 net; 200 mesh, fine $13.25, net.

### BLOOD FLOUR

**Louisville:** Demand fair; trend steady; supply good; $82.50@87.50, sacked.

### BLOOD MEAL

**Louisville:** Demand fair; trend firm; supply good; $82.50@85.50, sacked.

**Ogden:** Supply ample; $90 ton in 100-lb. bags, f.o.b. Ogden.

**Los Angeles:** Demand good; trend firmer; supply tight; $6.25 a unit of ammonia, sacked.

**Omaha:** Demand and supply fair; trend strong; 80% $100, sacked, Omaha.

**Portland:** Demand slow; supply ample; trend unchanged; $112.

**San Francisco:** Demand fair; supply ample; $5 a unit of ammonia, sacked.

**New Orleans:** Demand slow; supply ample; trend steady; $82.50@87.50, sacked.

**Chicago:** Demand and supply fair; trend steady; 80% protein, 100 lb. bags $120.

### BONE MEAL (STEAMED)

**New Orleans:** Demand fair; trend easy; supply ample; $85@90, sacked.

**San Francisco:** Demand good; supply ample; $75, sacked.

**Portland:** Demand slow; supply ample; trend unchanged; $99.

**Louisville:** Demand dull; trend steady; supply light; $90@95, sacked.

**Los Angeles:** Demand limited; supply adequate; trend steady; imported $82, 20 ton lots, sacked.

**Denver:** Demand fair; trend steady; supply ample; $109, Denver.

**Boston:** Demand and supply steady; $105.

**Ft. Worth:** Demand good; supply extremely light; $100, sacked, f.o.b. Ft. Worth, local manufacture; imported $92.50, sacked, delivered Ft. Worth.

**Cincinnati:** Demand and supply fair; trend easy; $110, sacked, Cincinnati.

**Chicago:** Demand quiet; trend firm; supply fair; 100 lb. bags $102.50.

**Buffalo:** Demand good; trend steady; supply limited; $105, sacked.

**Seattle:** Demand good; trend firm; supply limited; $92, ex-dock, sacked.

### BREWERS DRIED GRAINS

**Philadelphia:** Demand slow; supply fair; $48.

**Louisville:** Demand fair; trend steady; supply ample to good; $48, sacked.

**San Francisco:** Demand fair; supply ample; $54, sacked.

**New Orleans:** Demand fair; trend easy; supply good; $52@53, sacked.

**Ft. Worth:** Demand fair; supply sufficient; 26% protein $53.90, sacked, March.

**Boston:** Demand spotty; supply improved; 26%, bulk $45; 22% Canadian, sacked $49.

**Los Angeles:** Demand slow; trend unchanged; supply adequate; $50.50.

**New York:** Demand fairly good; trend stronger; supply moderate; $46 bulk, $52 sacked, Boston.

**Cincinnati:** Demand fair; trend steady; supply adequate; $45.50.

**St. Louis:** Demand good; trend steady; supply adequate; $39.

**Chicago:** Demand fair; trend unsettled; supply ample; $34@36.50.

**Buffalo:** Demand fair; trend steady; supply adequate; $46, Boston.

### BREWERS DRIED YEAST

**Boston:** Demand and supply steady; 10¢ lb.

**Denver:** Demand light; trend steady; supply ample; 8¢ lb., f.o.b. Golden, Colo.

**Louisville:** Demand fair; trend firm; supply good; 10@10½¢ lb., sacked.

**Portland:** Demand good; supply ample; trend unchanged; 8½¢ lb.

**Los Angeles:** Demand slow; trend unchanged; supply adequate; 10¢ lb., 5-ton lots; 11¢ lb., 1-ton lots; 12¢ lb., less than ton lots; all sacked.

**Omaha:** 10½¢ lb.

**San Francisco:** Demand fair; supply good; 10¢ lb., sacked.

**Cincinnati:** Carlots 11¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb., sacked.

**Chicago:** Demand fair; trend steady; supply ample; 9½@10¢ lb., carlots, sacked; 9¾@12¼¢ lb., l.c.l.

**Milwaukee:** Demand fair; trend steady; supply ample; 10½@12¼¢ lb., ton lots.

**St. Louis:** Demand fair; trend firm; supply ample; 9½@10¢ lb., carlots, sacked; 10½¢ lb., ton lots; 11½¢ lb., less than ton lots.

**Pittsburgh:** Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb., all sacked.

**New Orleans:** Carlots 10¢ lb.; 5-ton lots 11¢ lb.; ton lots 11½¢ lb., all sacked.

**New York:** Carlots 9¾¢ lb.; 10-ton lots 10¢ lb.; 5-ton lots 10½¢ lb.; ton lots 11¢ lb., all sacked, f.o.b. New Jersey

**Buffalo:** Demand fair; trend steady; supply ample; $9.65 cwt.

**Seattle:** Demand slow; trend steady; supply ample; $12 cwt., sacked.

### BUTTERMILK (CONDENSED)

**Ogden:** Supply ample; $4.40, 100-lb. drum.

**Los Angeles:** Demand fair; trend unchanged; supply adequate; 5½¢ lb., 100 lb. lots, 4½¢ lb., 500-lb. lots, both in barrels.

**San Francisco:** Demand fair; supply good; $5 cwt., drums.

**Boston:** Demand and supply steady; 3.95¢ lb.

**Philadelphia:** Demand slow; supply light; $4.25 cwt.

**Louisville:** Demand slow; trend steady; supply nil; $4.25 cwt., sacked in paper drums, nominal.

**New Orleans:** Demand slow; trend unchanged; supply adequate; $4.20@4.25 cwt.

**Chicago:** Demand slow; trend steady; supply ample; $3.50@3.75 cwt., barrels.

### CALCITE CRYSTALS AND FLOUR

(All prices net, sacked, including freight)

**New York:** Crystals $16.28, flour $10.28.
**Buffalo:** Crystals $17.11, flour $11.11.
**Toledo:** Crystals $18.96, flour $12.96.
**Boston:** Crystals $17.63, flour $11.63.
**Lime Crest, N.J.** Crystals $11.50, flour $5.50.

### CALCIUM CARBONATE

**Los Angeles:** Demand slow; trend unchanged; supply adequate; flour $10.15, 20-ton cars; meal $11.15, 20-ton cars; both sacked.

**Cincinnati:** Demand fair; trend steady; supply adequate; $7@7.50 cwt.

**Chicago:** Demand fair; trend steady; supply ample; fine grind, plain, 100 lb. bags $9.54; bulk, in hopper cars $7.54; bulk, in boxcars $8.04; granular grind $1 premium.

**Minneapolis:** Fine grind, 50 lb. bags $12.25, 100 lb. bags $11.50; bulk, boxcar $10; bulk, hopper $9.50; coarse grind $1 premium, delivered Minneapolis.

**Seattle:** Demand and trend steady; supply good; $14, ex-warehouse, sacked.

### CHARCOAL

**Boston:** Demand and supply light; $110.

**Los Angeles:** Demand fair; trend unchanged; supply adequate; hardwood poultry: $156, less than ton lots, sacked; $144.40, ton lots, sacked.

**San Francisco:** Demand steady; supply ample; $141, sacked.

**Chicago:** Demand fair; trend firm; supply fair; 50 lb. multiwalls $110.

### COCONUT OIL MEAL

**Portland:** Demand slow; supply ample; trend unchanged; $80.50.

**Los Angeles:** Demand slow; trend unchanged; supply adequate; copra cake $75.

**San Francisco:** Demand good; supply tight; solvent $69.50.

**Seattle:** Demand fair; trend firm; supply limited; $86, delivered truck, sacked.

### COD LIVER OIL (FORTIFIED)

**New York:** Demand fair; trend steady; supply satisfactory; 1,500 A, 300 D 16⅛¢ lb.; 3,000 A, 300 D 20¢ lb.

**Boston:** Demand and supply steady; 300 D, 3,000 A 22¢ lb.; 600 D, 2,250 A 20⅛¢; 300 D, 2,250 A 20¢; 600 D, 1,500 A 19¢; 300 D, 1,500 A 18⅛¢.

### CONDENSED FISH SOLUBLES

**Boston:** Demand and supply good; 4¾¢ lb.

**Los Angeles:** Demand slow; trend unchanged; supply adequate; 2¾¢ lb.

**New York:** Demand good; trend steady; supply adequate; $40@45, f.o.b. Gulf and Atlantic shipping points.

**Denver:** Demand poor; trend steady; supply ample; dried $132, Denver.

**New Orleans:** Demand light; trend easy; supply fair; 50% solid $42.50@45, f.o.b. Gulf.

### CORN GLUTEN FEED AND MEAL

(All quotations for all cities are bulk basis, sacked basis $5 more)

**Minneapolis:** Feed $43.60, meal $44.60.
**Atlanta:** Feed $47, meal $48.
**Birmingham:** Feed $45.60, meal $46.60.
**Boston:** Feed $48.50, meal $69.50.
**Chicago:** Feed $37, meal $58.
**Cleveland:** Feed $44.90, meal $65.90.
**Denver:** Feed $47.20, meal $68.20.
**Ft. Worth:** Feed $45.70, meal $66.70.
**Indianapolis:** Feed $42.20, meal $63.20.
**Kansas City:** Feed $37, meal $58.
**Louisville:** Feed $43.60, meal $64.60.
**New Orleans:** Feed $46.90, meal $67.90.
**New York:** Feed $48.10, meal $69.10.
**Norfolk:** Feed $47.50, meal $68.50.

### CORN OIL MEAL

**Louisville:** Demand slow; trend steady; supply ample; $55.45, sacked.

**Cincinnati:** Demand fair; trend steady; supply adequate; $45.

### COTTONSEED OIL MEAL

**Wichita:** Demand good; supply sufficient; 41% old process, sacked $69.

**Los Angeles:** Demand slow; trend firm; supply adequate; $72.

**Denver:** Demand fair; trend steady; supply ample; 2% $61.40, Denver.

**Memphis:** Demand good; trend steady; supply limited; prime 41% protein, old process $56.50; new process, 41% solvent $54.50.

**Louisville:** Demand slow; trend stronger; supply normal; old process $64.50, new process $64.50, sacked.

**Boston:** Demand fair; supply adequate; $70.

**Portland:** Demand slow; trend lower; supply ample; $74.

**San Francisco:** Demand good; supply tight; 41% $71.50, 44% $76.

**Ogden:** Supply ample; 41% $70@72.

**New Orleans:** Demand slow; supply ample; trend steady; $64.50@65 bulk, $67.50@68 sacked.

**Philadelphia:** Demand slow; supply fair; $70.

**Ft. Worth:** Demand excellent; offerings light; C/L hulls unavailable at present; 41% old process $65, f.o.b. mills Ft. Worth; carlots solvent 2% fat added $60.50, delivered Ft. Worth; pellets $2 additional.

**Omaha:** Demand fair; trend strong; supply tight; 41% solvent $61.70, delivered Omaha.

**Cincinnati:** Demand poor; trend steady; supply adequate; $65.

**Buffalo:** Demand poor; trend steady to lower; supply adequate; $72.50, sacked, Boston.

**St. Louis:** Demand fair; trend steady; supply adequate; solvent $58.50.

**Kansas City:** Demand good; trend strong; supply adequate; 41% old process $56.50@57; 41% solvent process $54.50@55 Memphis.

**Atlanta:** Demand good; trend strong; supply ample; 41% $59, Georgia; $57, north Alabama; $56, Mississippi and Tennessee producing mills.

**Chicago:** Demand and supply fair; trend irregular; Memphis basis: hydraulic $57, solvent $53.

**Seattle:** Demand good; trend steady; supply limited; 41% expeller process $82, delivered truck lots.

### CURACAO PHOSPHATE

**New York:** $48, sacked; $46, bulk; f.o.b. New Orleans, Jacksonville or Philadelphia.

### D ACTIVATED ANIMAL STEROL (POWDERED)

**Cincinnati:** Demand fair; trend steady; supply ample; 1,500 ICU 11@12¢ lb.; 3,000 ICU 10¢ lb., warehouse.

**Kansas City:** Demand fair; trend steady; supply adequate; 1,500 ICU 9½¢ lb.; 3,000 ICU 11¢ lb.

### D ACTIVATED PLANT STEROL (POWDERED)

**Chicago:** Demand fair; supply ample; 4,000,000 U.S.P. units per lb., 15¢ lb. in ton lots, less than ton lots 17¢ lb.; 12,000,000 units per lb., 5 tons to a carload 28¢ lb., ton lots and less 30¢ lb.

### DEFLUORINATED PHOSPHATE

**Houston:** Minimum phosphorus 19%, minimum calcium 32%, maximum calcium 35%, maximum fluorine .19% $74.35 net ton, f.o.b. Houston, 100 lb. multiwall bags; $71.35, bulk.

**Coronet, Fla.:** Minimum phosphorus 18%, minimum calcium 31%, maximum calcium 34%, maximum fluorine .18%; guaranteed uniform analysis; carload $66.25, sacked, 100-lb. multiwall bags, bulk $63.25; truckload $67, sacked, in 100-lb. multiwall bags, bulk $64, f.o.b. Coronet, Fla.

**Tupelo, Miss.:** Minimum phosphorus 14%, minimum calcium 28%, maximum fluorine .14% $57.07, f.o.b. Tupelo in 100-lb. multiwall bags, $54.07 bulk.

**Wales, Tenn.:** Minimum phosphorus 18%, minimum calcium 33%, maximum 36%, maximum fluorine .18% $71.80 (or $3.99 per unit of P), f.o.b. Wales in 100-lb. multiwall bags, $2 less in bulk.

**Cincinnati:** 18% phosphorus $81.02; 14% phosphorus $71.03, f.o.b. Cincinnati.

### DICALCIUM PHOSPHATE

**Chicago:** Bulk 18.5% phosphorus, carlots or trucks $83; 20,000 lb. or more $86 net ton in 100 lb. papers; less than 20,000 lb. $96, basis Chicago Heights, Ill., or Nashville, Tenn.; 21% phosphorus, carlots or trucks, bulk $94.65; 20,000 lb. or more, per net ton in 100 lb. papers, $97.65 and less than 20,000 lb., $107.65, basis Chicago Heights, Ill., or Nashville, Tenn.

**Bonnie, Fla.:** Minimum phosphorus 18½%, granular, $86 (or $4.65 unit of P), freight equalized from nearest producing point, carload basis; bulk carloads $3 less; in truck loads of less than 10 tons, $10 more. Western slope prices: for delivery at established railroad stations and by truck at regular feed mixing plants: California, Arizona, Nevada and Utah, $99.90; Washington, Oregon, Montana and Idaho, $107.15; bulk carloads $3 less; truck loads less than 10 tons, $10 more.

**Columbia, Tenn.:** Minimum phosphorus 18½%, minimum calcium 24% $86, f.o.b. Columbia, in 100 lb. multiwall bags; freight equalized with nearest producing point, carload basis; bulk $3 ton less.

**Texas City, Texas:** Minimum phosphorus 18.5%, minimum calcium 20%, maximum calcium 23%, maximum fluorine .12%; carload and truckload $80.50, sacked, in 100 lb. multiwall bags, bulk $77.50, f.o.b. Texas City.

**Trenton, Mich.:** 18½% P $83, bulk, boxcar/hopper car; $86, bagged, in carloads or truck loads; $96, bagged, in less than carload lots; 21% P, $94.65, bulk, boxcar/hopper car; $97.64, bagged in carloads or truck loads; $107.65, bagged, less than carload; all prices f.o.b. Trenton, freight equalized with nearest producing point.

**Portland:** Demand good; supply ample; trend unchanged; $112.

**Denver:** Demand fair; trend slow; supply ample; $86.50, f.o.b. Denver.
**Cincinnati:** 18½% phosphorus $92.15, f.o.b. Cincinnati.

### DISTILLERS DRIED GRAINS

**San Francisco:** Demand fair; supply ample; solubles $85, sacked.
**Philadelphia:** Demand slow; supply light; $56.
**Boston:** Demand fair; supply good; light $56@57.
**Louisville:** Demand fair; trend steady; supply good; for March, bourbon grains: light $54@55, dark $56@56, solubles $77, all sacked.
**Cincinnati:** Demand slow; trend steady; supply adequate; truck, dark $58, light $57.50.
**Buffalo:** Demand and supply fair; trend steady; $60, Boston.
**Seattle:** Demand fair; trend firm; supply limited; $69, delivered truck lots, sacked.

### DRIED BEET PULP

**Ogden:** Supply good; $41@46.
**Portland:** Demand good; supply ample; trend unchanged; $56.40.
**Boston:** Demand poor; supply ample; $53.75, sacked.
**Denver:** Demand excellent; trend very strong; supply nil; $32.50, bulk, f.o.b. Colorado factories; $34.50, pellets, f.o.b. Colorado factories.
**Los Angeles:** Demand slow; trend weaker; supply adequate; $47.40@48.50.
**San Francisco:** Demand good; supply fair; $45.20.
**New Orleans:** Demand fair; trend steady; supply adequate; $54@55, sacked.
**Ft. Worth:** Demand slow; supply sufficient; 50 lb. papers $54, 30 days' shipment, delivered Ft. Worth.
**Buffalo:** Demand fair; trend steady to higher; supply fair to poor; $54, sacked, Boston.
**Seattle:** Demand good; trend firm; supply limited; $52, delivered carlots, sacked.

### DRIED BUTTERMILK

**Boston:** Demand good; supply short; 14¢ lb.
**Louisville:** Demand slow; trend steady; supply normal; $13@13.50 cwt., sacked.
**San Francisco:** Demand fair; supply ample; 11½¢ lb., sacked.
**Ogden:** Supply good; $17.25 cwt.
**Los Angeles:** Demand better; trend firmer; supply tight; 13¾¢ lb., sacked.
**New Orleans:** Demand fair; trend steady; supply ample; $13@13.50 cwt.
**Chicago:** Demand slow; trend easier; supply fair; medium acid $11.75@12 cwt., sweet cream $11.75@12 cwt., both sacked.
**Buffalo:** Demand fair; trend steady; supply limited; $13.75 cwt.

### DRIED CITRUS PULP

**San Francisco:** Demand and supply fair; meal $49, sacked.
**Los Angeles:** Demand slow; trend unchanged; supply adequate; orange pulp $40; lemon pulp $38.
**Boston:** Demand slow; supply ample; $51.50, sacked.
**New Orleans:** Demand fair; trend easy; supply normal; $32.50@35, f.o.b. Florida.
**Buffalo:** Demand fair to poor; trend steady; supply adequate; $33, sacked, f.o.b. Florida points.

### DRIED SKIM MILK

**Louisville** Demand slow; trend steady; supply light; $13@13.50 cwt., sacked.
**New Orleans:** Demand slow; supply ample; trend unchanged; $13.50@14.25 cwt., sacked.
**Minneapolis:** Demand remains fair to poor; supplies tight; price steady to slightly weaker at $13.50 cwt., sacked.
**Los Angeles:** Demand fair; trend unchanged; supply adequate; 15¢ lb., less than ton lots; 14¾¢ lb., ton lots; both sacked.
**San Francisco:** Demand and supply fair; 13½¢ lb., sacked.
**Philadelphia:** Demand slow; supply light; $12.50 cwt.
**Ogden:** Supply normal; $15.15, 100-lb. drum.
**Boston:** Demand steady; supply improved; 13¢ lb.
**Cincinnati:** Demand fair; trend steady; supply adequate; 13@14¢ lb., sacked.
**Chicago:** Demand quiet; trend lower; supply ample; $11.75@12 cwt., sacked.
**Buffalo:** Demand fair; trend steady; supply ample; spray $13.85 cwt.

### DRIED WHEY

**Minneapolis:** Increasing supply; demand fair; price unchanged at $5.35@5.45.
**Ft. Worth:** Demand fair; supply adequate; carlots, standard $6, sacked, delivered Ft. Worth; $6.25 ton lots, f.o.b. warehouse Ft. Worth.
**Ogden:** Supply good; $7, 100-lb., sacked.
**Louisville:** Demand slow; trend steady; supply normal; $6.50 cwt., sacked.
**Boston:** Demand and supply steady; 5½¢ lb., f.o.b. shipping points.
**Portland:** Demand slow; supply ample; trend unchanged; $5 cwt.
**Denver:** Demand fair; trend steady; supply ample; $6.50 cwt.
**San Francisco:** Demand steady; supply good; $5.75 cwt., sacked.
**Philadelphia:** Demand slow; supply light; $6.50 cwt.
**Los Angeles:** Demand slow; trend unchanged; supply adequate; $5.93 cwt., carloads, sacked; $6.23 cwt., l.c.l., sacked.
**New Orleans:** Demand fair; trend easy; supply ample; $6@6.50 cwt., sacked.
**Wichita:** Demand light; supply ample; $6.50 cwt., sacked.
**Cincinnati:** Demand fair; trend steady; supply adequate; $6 cwt., sacked.
**Kansas City:** Demand fair; trend steady; supply adequate; regular or partially delactosed $5.50 cwt., producers' points.
**Chicago:** Demand quiet; trend steady; supply adequate; $5.75@6 cwt., sacked.
**Seattle:** Demand and trend steady; supply good; $6.40 cwt., ex-warehouse, l.c.l.

### FEATHER MEAL (HYDROLYZED)

**Ft. Worth:** Demand good; supply extremely scarce; 85%-87% protein $72.50@75, sacked, f.o.b. trucks, north Texas plants.
**Boston:** Demand and supply steady; $80, f.o.b. shipping points.
**Los Angeles:** Demand very slow; trend unchanged; supply adequate; $1 a unit of protein, sacked.
**Atlanta:** Demand fair; trend steady; supply ample; $77.50, f.o.b. Alabama and Georgia producing mills.
**Salisbury, Md.:** Demand spotty; supply in excess; $80, f.o.b.

### FISH MEAL

**Portland:** Demand slow; supply ample; trend unchanged; $1.60 a unit.
**New York:** Demand good; trend steady; supply satisfactory; 60% menhaden meal $100@105, sacked, f.o.b. shipping points.
**Louisville:** Demand slow; trend firm; supply ample; $145, nominal.
**Los Angeles:** Demand slow; trend weaker; supply ample; local production, 60% protein $1.60 a unit, sacked.
**San Francisco:** Demand slow; supply ample; $1.70 a unit of protein, sacked.
**Ogden:** Supply good; $1.70 a unit, f.o.b. Coast; 65% $115@117.
**Boston:** Demand slow; supply good; $117, sacked.
**New Orleans:** Demand dull; trend easy; supply ample; menhaden, 60% $105@110, sacked, f.o.b. Gulf; scrap $101@106, sacked, f.o.b. Gulf.
**Ft. Worth:** Demand improving; supply sufficient; sacked: 65% protein $101; 60% protein menhaden $99.50, delivered Ft. Worth.
**Denver:** Demand fair; trend steady; supply ample; $1.75 a unit protein, f.o.b. West Coast.
**Omaha:** Demand fair; trend improving; supply ample; 60% menhaden $125, f.o.b. Omaha.
**Cincinnati:** Demand fair; trend steady; supply adequate; $145.
**Minneapolis:** Market steady; Gulf menhaden $132, sacked, truck lots; 70% herring $1.70 a unit protein, f.o.b. West Coast; 60% blended $128@130, sacked, delivered Minneapolis.
**Chicago:** Demand slow; supply liberal; eastern menhaden, meal $101@105, scrap $96@101; Gulf menhaden, meal $101@105, scrap $96@101; Canadian herring, meal $1.60@1.75 a unit of protein.
**Buffalo:** Demand just fair; trend steady; supply ample; 60% protein menhaden $120 bulk, $125 sacked.
**Seattle:** Demand fair; trend steady; supply good; $1.70 a unit of protein, delivered truck lots, sacked, Canadian production.

### HAY

**Philadelphia:** Demand slow; supply light; $24@25.
**Wichita:** Demand good; supply insufficient; prairie $23@25; alfalfa $32@34, baled.
**Louisville:** Demand dull; trend steady; supply good; No. 1 hay, any variety $30@35, No. 2 $28@30; straw $18@20.
**Los Angeles:** Slow demand with adequate offerings; U.S. No. 1 $43@44; U.S. No. 2 leafy $40@41; U.S. No. 2 green $41@43; U.S. No. 2 $37@39.
**Ogden:** Supply average; $25 ton in the barn.
**Boston:** Demand and supply steady; No. 2 timothy $40@42.
**Ft. Worth:** Demand greatly increased, due to weather; offerings extremely light; carlots, baled, No. 1 alfalfa $50@52, No. 2 $48@50; No. 2 prairie $30@32; No. 2 Johnson grass $28@30, delivered Texas common points.
**Portland:** Demand slow; trend lower; supply ample; $37@38.
**Denver:** Demand very good; trend good; supply fair; $35, new hay, first cutting; $33@34, new hay, third cutting alfalfa, baled.
**Cincinnati:** Demand slow; trend steady; supply adequate; No. 1 timothy $24@25; alfalfa clover mixed $27.50; No. 1 red clover $26@27; alfalfa, first cutting $32, second cutting $25; wheat or oat straw $18@20.
**Seattle:** Demand good; trend easy; supply fair; U.S. No. 2 green alfalfa $38, delivered truck lots, baled.

### HOMINY FEED

**Memphis:** Demand nil; trend steady; supply ample; white $45, yellow $45.
**Louisville:** Demand slow; trend easy; supply normal; $46.
**Boston:** Demand slow; supply good; $48@49.
**New Orleans:** Demand fair; trend easy; supply ample; $47@48, sacked.
**Cincinnati:** Demand poor; trend steady; supply adequate; $41.
**Buffalo:** Demand and supply fair; trend steady; $49, Boston.
**Chicago:** Demand fair; trend higher; supply ample; $39.
**St. Louis:** Demand fair; trend steady; supply adequate; yellow $38.
**Kansas City:** Demand good; trend stronger; supply tight for nearby shipment; white or yellow $33.50@34.
**Seattle:** Demand fair; trend easy; supply limited; $47.50, delivered carlots.

### LINSEED OIL MEAL

**Minneapolis:** Continued slow demand has edged prices of new process down slightly to $54.50@55.50; old process up slightly to $66@67.
**New Orleans:** Demand slow; trend easy; supply ample; $81.50@82 bulk, $84.50@85 sacked.
**Ft. Worth:** Demand slow; supply sufficient; 34% protein, solvent $72, rail, March.
**Philadelphia:** Demand slow; supply fair; 34% $73.
**Omaha:** Demand fair; trend easy; supply ample; 34% solvent $60.80, bulk; 32% old process $73.30, Omaha.
**Portland:** Demand slow; trend lower; supply ample; $85.
**Boston:** Demand slow; supply ample; $81.
**Los Angeles:** Demand limited; trend firmer; supply limited; local production, 31% protein $77.
**Wichita:** Demand fair; supply good; 34% $79, sacked.
**Louisville:** Demand slow; trend steady; supply normal; old process $85, new process $73.50, both sacked.
**Denver:** Demand and supply fair; trend steady; $70.30, bulk lots, Denver.
**San Francisco:** Demand fair; supply ample; $78.50.
**Cincinnati:** Demand poor; trend steady; supply adequate; new process $55; old process $66.50, Minneapolis.
**Chicago:** Demand and supply fair; trend steady; Minneapolis basis: solvent $55, expeller $67.
**Kansas City:** Demand fair; trend steady; supply ample; solvent process $54.50@55; old process $66.50@67, Minneapolis.
**Seattle:** Demand fair; trend firm; supply limited; 31% protein (California) $93, delivered carloads, sacked.

### LIVER & GLANDULAR MEAL

**Omaha:** Demand fair; trend improving; supply tight; 65% $175, sacked, Omaha.

### MALT SPROUTS

**New Orleans:** Demand fair; trend easy; supply ample; $43.50@46, sacked.
**Boston:** Demand and supply limited; $48, sacked.
**Cincinnati:** Demand fair; trend steady; supply adequate; No. 1 $34.
**Chicago:** Demand and supply fair; trend steady; $32.

### MEAT AND BONE MEAL

**St. Paul:** Demand strong; supply ample; prices up again from $74@78 last week to $78@81.
**Omaha:** Demand and supply good; trend firm; $75.
**Ogden:** Supply good; $78 ton, 50% protein, in 100-lb. bags.
**Portland:** Demand slow; supply ample; trend unchanged; $1.39 a unit.
**New York:** Demand fair; trend steady; supply good; 50% $76, sacked; 55% $77, sacked, New York.
**Denver:** Demand good; trend strong; supply ample; 50% $72.50, sacked, truck lots; $70, bulk lots.
**Louisville:** Demand fair; trend steady; supply good; $85@90, sacked.
**Los Angeles:** Demand improved; trend steady; supply adequate; 50% protein $1.65 a unit.
**Boston:** Demand and supply steady; $1.15 a protein unit; converted 50% $70.
**Wichita:** Demand fair; supply sufficient; 50% $83, sacked, f.o.b. plant; 55%, no quotations, no offerings.
**San Francisco:** Demand fair; supply ample; $1.55 a unit of protein.
**New Orleans:** Demand slow; trend easy; supply ample; $85@90, sacked.
**Ft. Worth:** Demand good; supply light; meat and bone, 50% $77@78, f.o.b. Ft. Worth.
**Cincinnati:** Demand good; trend steady; supply short; 50% meat and bone scraps $78.50, Cincinnati.
**St. Louis:** Demand good; trend higher; supply tight; $85.
**Chicago:** Demand fair; trend steady; supply adequate; 50% protein, 100 lb. bags $80.
**Kansas City:** Demand good; trend strong; supply tight; 50% $76.
**Buffalo:** Demand good; trend stronger; supply ample; 50% meat scraps $77.50 bulk, $82.50 sacked.
**Seattle:** Demand good; trend steady; supply ample; $75, ex-warehouse, sacked, 50% protein.

### MILLFEED

**Minneapolis:** After big price jumps last week the trend continues; middlings up another $1 to $41, sacked; bran also up $1 to $41, sacked; red dog steady at $41@44.
**Kansas City:** Demand good; trend strong; supply tight; sacked, bran $39.50@40, shorts $38.50@39; bulk, bran $35.50@36, shorts $37@37.50, middlings $37@37.50.
**Wichita:** Demand strong for mixed cars; supply adequate; Kansas City: bran $38.75@39.25, shorts $38.25@38.75, sacked.
**Ft. Worth:** Demand fair; offerings lim-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ited for immediate delivery; bran $44.50, burlaps $47.50; gray shorts $46, burlaps $47.50; bulk middlings $45.50, delivered Texas common points.

**Chicago:** Bulk, standard bran $41; middlings $41.50; red dog $42.

**St. Louis:** Demand fair; trend steady; supply ample; sacked, bran $44.50, shorts $44; bulk, bran $40.50, shorts $41.50, middlings $41.50.

**Omaha:** Demand good; trend strong; supply tight; sacked bran $39.50; sacked gray shorts $39; bulk standard midds. $38.50, all Omaha.

**Cincinnati:** Demand fair; trend higher; supply adequate; bran $45, middlings $46 @47.

**Boston:** Demand improved; supply spotty; bran $49, middlings $51.

**Buffalo:** Quotations, bulk, bran $43@44.50, sacked $47.50@49; bulk, middlings $44@ 45.50, sacked $48.50@50; bulk red dog $44.50 @46, sacked $49@50.50.

**Philadelphia:** Demand spotty; trend unsettled; supply fair; bran $50, standard midds. $51, red dog $53.

**New Orleans:** Demand good; trend easy; supply ample; sacked, bran $50.50@51.25, shorts $50@50.75; bulk, bran $46.50@47.25, shorts $47@47.75, middlings $47@47.75.

**Louisville:** Demand fair; trend strong; supply good; bran $50.10, mixed feed $50.35, shorts $51.10, all sacked.

**Memphis:** Demand good; trend steady; supply fair; wheat bran $43.70, gray shorts $44.70, standard midds. $44.70.

**Seattle:** Demand fair; trend steady; supply good; $36, delivered common transit points, carlots.

**Portland:** Demand improved; trend higher; supply ample; $35.

**Ogden:** Supply good; to Utah and Idaho: red bran and mill run $34, middlings $39; to Denver: red bran and mill run $41, middlings $46; to California: red bran and mill run $41.50, middlings $46.50, f.o.b. San Francisco and Los Angeles.

**Denver:** Demand steady to strong; trend steady; supply limited; shorts $41.75, bran $42.25, mill run $42.

**Los Angeles:** Standard mill run $44@ 44.50, improved demand; firmer trend, tighter supplies; red bran $51@54, slow demand, firmer trend, tighter supplies.

**San Francisco:** Demand slow; supply ample; millfeed $41.50, red bran $52.50.

### MINERAL FEED

**Portland:** Demand good; supply ample; trend unchanged; $42.

**Wichita:** Demand heavy; supply adequate; all-purpose with iodine, 50 lb. blocks $97.50; 100 lb. bags $92.50, f.o.b. plant.

**Ogden:** Supply ample; $113 ton in 50 lb. blocks; $103 ton, granular, 50 lb. bags.

**Denver:** Demand fair; trend slow; supply ample; $100.

**San Francisco:** Demand steady; supply good; all-purpose with iodine $70, sacked.

**Ft. Worth:** Demand fair; supply sufficient; all-purpose granules $90, block $97; mineral phosphorus 6% granules $106, block $113; cattle-sheep mineral, 7% phosphorus granules $100, block $107; hog mineral phosphorus 3½% granules $87, phosphorus 2% $77 (all in 50 lb. paper bags).

**Sioux City:** 50-lb. mineral blocks 8.2% phosphorus $92; 7.5% phenothiazine sheep mineral blocks $4 each.

**Seattle:** Demand fair; trend steady; supply good; mixer mineral $48, ex-warehouse, sacked; all-purpose mineral $85, ex-warehouse, sacked.

### MOLASSES

**Minneapolis:** No price change following last week's 50¢ drop; $28, tank truck, delivered.

**Boston:** Demand active; supply plentiful; 14¢ gal., tank cars.

**New York:** Demand fair; trend steady; supply satisfactory; 14¢ gal., Albany.

**Louisville:** Demand fair; trend easy; supply good; blackstrap 9¢ gal., tank car lots, f.o.b. Gulf ports.

**Memphis:** Demand fair; trend steady; supply ample; blackstrap 9¢ gal., tank car, f.o.b. New Orleans; $22.27 ton, delivered Memphis, truck.

**Los Angeles:** Demand good; trend unchanged; supply adequate; $19.50, f.o.b. tank cars; $19.75, f.o.b. tank trucks.

**Denver:** Demand fair; trend steady; supply ample; 9¢ gal., New Orleans; $15.39 ton, New Orleans; $19.50 ton, West Coast.

**New Orleans:** Demand good; trend steady; supply ample; 9¾@10¢ gal., tank cars and trucks; 600 lb. customers' drums $6.92.

**San Francisco:** Demand and supply good; $19.75, f.o.b. cars, Richmond, Cal.

**Ft. Worth:** Demand good; supply sufficient; blackstrap 10¢ gal., f.o.b. Houston; delivered Ft. Worth, truck $23.80, seller's market price on date of shipment.

**Cincinnati:** Demand good; trend steady; supply adequate; 9¼¢ gal., New Orleans.

**St. Louis:** Demand slow; trend weaker; supply ample; 9¢ gal., tank car, New Orleans.

**Kansas City:** Demand fair; trend steady; supply ample; blackstrap 9@9¼¢ gal., f.o.b. tank car, New Orleans.

**Buffalo:** Demand fair; trend steady; supply adequate; 14¢ gal., f.o.b. Albany.

**Seattle:** Demand fair; trend easy; supply good; $20.25 ton, f.o.b. Seattle, tank truck lots.

### NIACIN

**New York:** 50% $1@1.20 lb.

### OAT PRODUCTS

**Minneapolis:** Price strength noted last week is holding steady; feeding rolled $81; feeding oatmeal $68; pulverized still $46.50; reground oat feed $26; crimped steady at $61; all sacked prices.

**Philadelphia:** Pulverized whites $51.50; domestic, demand slow, supply light $28; Canadian oat feed, demand slow, supply light $32.50, sacked.

**Portland:** Demand improved; supply ample; trend unchanged; rolled $60, ground $62, cleaned $60.

**Louisville:** Demand slow; trend steady; supply normal; reground $26.80, rolled white oats $84.80, feeding oatmeal $80.30, pulverized white $53.80, crimped white $68.80, all sacked.

**Memphis:** Demand poor; trend steady; supply ample; 3½% protein, reground oat feed $22.75.

**Boston:** Demand slow; supply fair; white pulverized, sacked $56.50; reground oat feed $30, sacked.

**Los Angeles:** Demand slow; trend unchanged; supply limited; local production, pulverized $69, sacked.

**Ft. Worth:** Demand slow; supply sufficient; oat millfeed $50.20, reground $29.70 @30.70, March, sacked, new jutes.

**Cincinnati:** Demand slow; trend steady; supply adequate; reground oats $29, pulverized white oats $46.

**Chicago:** Demand quiet; trend easier; supply ample; reground oat feed $16; No. 1 fine ground feeding oatmeal $74; feeding rolled oats $77@79.

**Seattle:** Demand good; trend firm; supply fair; feed $56, delivered truck lots, 38 lb. or better.

### OYSTER SHELL

**Louisville:** Demand and supply good; trend firm; in 80-lb. paper sacks $23.45; in 50-lb. paper sacks $23.70; in 25-lb. paper sacks $25.95.

**Portland:** Demand slow; supply ample; trend unchanged; western $31, eastern $36, granite grits $25, shell flour $21.

**Boston:** Demand and supply steady; $26, paper.

**New Orleans:** Demand and supply good; trend steady; $24@24.50, papers.

**Los Angeles:** Demand better; trend unchanged; supply ample; $15.40.

**San Francisco:** Demand fair; supply ample; local $15, eastern $26, sacked.

**Cincinnati:** Demand fair; trend steady; supply adequate; $24.45, sacked.

**Seattle:** Demand and trend steady; supply good; eastern $36, delivered carlots, sacked.

### PEANUT MEAL

**Atlanta:** Demand fair; trend weak; supply limited; 45% solvent $52, expeller $58, f.o.b. Alabama and Georgia producing mills.

### PEAT MOSS

**Philadelphia:** Demand slow; supply fair; $2.99, f.o.b. pier.

**Boston:** Demand and supply steady; $3.15 bale.

**Los Angeles:** Demand good; trend steady; supply adequate; Canadian 5.6 cu. ft. bales $3.65.

**Portland:** Demand good; supply ample; trend unchanged; $3.30 a bale.

**San Francisco:** Demand and supply fair; $3.65 a bale.

**Cincinnati:** Demand and supply good; truck lots $3.45 a bale, f.o.b. Cincinnati.

**Chicago:** Demand and supply fair; trend firm; standard 7½ cu. ft. bale $3.80.

**Seattle:** Demand and supply good; trend firm; $2.85 bale, delivered truck lots.

### POTASSIUM IODIDE, U.S.P.

**Cincinnati:** Demand good; trend steady; 90% KI in calcium stearate or carbonate mixtures: 250 lb. drums $1.35; 200 lb. in 100 lb. drums $1.35; 100 lb. drums $1.38; 25 lb. drums $1.41, f.o.b. Cincinnati.

**Chittenango, N.Y.:** Demand good; trend firm; supply ample; standard blends, 90% KI, 10% stearate or carbonate mixture, 100-lb. drums $1.32 lb.; 200 lb. and up $1.30 lb., all delivered.

### POULTRY BY-PRODUCTS

**Boston:** Demand fair; supply spotty; $89.

**Los Angeles:** Demand good; trend firm; supply very tight; $1.45 a unit of protein, sacked.

**Ft. Worth:** Demand good; supply limited; 55% protein $82.50@85, sacked, f.o.b. north Texas plants.

**Atlanta:** Demand fair; trend steady; supply ample; $78, f.o.b. Alabama and Georgia producing mills.

**Salisbury, Md.:** Demand good; supply limited; meal $88, f.o.b.

### RIBOFLAVIN

**New York:** $40 kilo in 4 and 16 gm./lb. mixtures.

**Cincinnati:** Trend steady; feed grade (in feed supplements) 4¢ gram in less than ton lots in 3.36 and 16 gm./lb. mixtures; 3¢ in ton lots or more, freight prepaid or paid to destination.

### RICE BY-PRODUCTS

**Los Angeles:** Demand slow; trend unchanged; supply adequate; California production, high fat content, bran $52, sacked.

**San Francisco:** Demand good; supply ample; bran $46, polished $49, both sacked.

**Ft. Worth:** Demand fair; supply moderate; rice bran $31@32, f.o.b. south Texas rice mills; hulls $3.50, sacked, f.o.b. mills.

### SCREENINGS

**Ft. Worth:** Demand good; supply limited; ground mixed grain $28.50@29.50.

**Cincinnati:** Demand fair; trend steady; supply adequate; unground grain screenings $23.50, delivered, Cincinnati.

**Minneapolis:** Supply remains very tight; buyers showing some anxiety; Canadian still $27, Duluth; domestic ranges unchanged, but most quotes at top end of ranges; light $13@23, mediums $24@33, heavies $34@43.

**Buffalo:** Demand and supply fair; trend steady to lower; ground, sacked $40.25, New York; bulk, unground $33, New York.

**Chicago:** Demand and supply fair; trend irregular; ground grain screenings $32; Canadian $31.50.

### SOFT PHOSPHATE WITH COLLOIDAL CLAY
(Sacked)

**Atlanta: $20.40@20.67.**
**Buffalo: $25.31@25.45.**
**Chicago: $24.77@24.90.**
**Cincinnati: $23.47@23.60.**
**Des Moines: $25.23@25.36.**
**Kansas City: $24.88@25.**
**Memphis: $22.20@22.47.**
**Minneapolis: $25.92@26.06.**
**Philadelphia: $24.32@24.95.**
**St. Louis: $24.14@24.27.**

### SORGHUMS

**Seattle:** Demand and supply good; trend steady; milo $45, delivered, carlots.

**Ogden:** Supply ample; milo $42@43.

**Los Angeles:** Demand steady; trend firmer; supply light; milo $2.20 cwt.

**Ft. Worth:** Demand improved; offerings light; No. 2 yellow milo $2.03@2.05, delivered Texas common points.

### SOYBEAN OIL MEAL

**Seattle:** Demand good; trend firm; supply ample; $80, delivered carlots.

**St. Louis:** Demand fair; trend steady; supply ample; 44% $58.

**Kansas City:** Demand slow; trend steady to easy; supply ample; 44% solvent process $52.50@53, Decatur.

**Atlanta:** Demand fair; trend weak; supply ample; 44% $64, delivered.

**Minneapolis:** More than adequate supplies; demand fair; 44% back to $48, Decatur, after 50¢ increase last week.

**New Orleans:** Demand slow; trend easy; supply ample; bulk $70.50@72, sacked $74 @76.

**Omaha:** Demand slow; trend steady; supply tight; 44% $59.50, delivered Omaha.

**Wichita:** Demand heavy; supply sufficient; 44% $60, 50% $72, sacked; 44% $63, 50% $69, bulk, f.o.b. Wichita.

**Louisville:** Demand fair; trend weak; supply good; $54.20, sacked.

**Los Angeles:** Demand improved slightly; trend firmer; smaller offerings; $76.40@ 77.40.

**Boston:** Demand slow; supply plentiful; 44% $51, 50% $55, f.o.b. Decatur.

**Portland:** Demand fair; trend higher; supply smaller; $49, f.o.b. Decatur.

**San Francisco:** Demand and supply fair; $75.90.

**Philadelphia:** Demand and supply fair; 44% $52, Decatur.

**Denver:** Demand fair; trend steady; supply ample; $68, Denver.

**Ft. Worth:** Demand fair; supply sufficient; 44% $65@66.30, March; $66.80, April; $67.30, May-September; 50% protein $73.30, March; $73.80, April; $74.30, May-July.

**Ogden:** Supply good; 44% protein $79@80.

**Memphis:** Demand slow; trend lower; supply fair; prime 44% solvent $58, f.o.b. Memphis.

**Cincinnati:** Demand poor; trend lower; supply adequate; $54@55, Decatur.

**Chicago:** Decatur basis, bulk, carlots—44% protein, unrestricted billing $55.50 and eastern restricted $50.50@51.50; 50% protein, unrestricted billing $61 and eastern restricted $55.

### TANKAGE

**New Orleans:** Demand dull; trend steady; supply good; 60% bulk $80.50@82; sacked $83@85.50.

**Ft. Worth:** Demand fair; supply moderate; 60% digester $82, Ft. Worth.

**Wichita:** Demand fair; supply sufficient; 60% $83, sacked, f.o.b. plant.

**Kansas City:** Demand good; trend strong; supply tight; 60% digester $76.

**Chicago:** Demand fair; trend higher; supply ample; 60% protein, 100 lb. bags $82.50.

**St. Louis:** Demand good; trend higher; supply tight; $85.

**St. Paul:** Good demand; lighter offerings; price increase continues, up from $74@76 last week to $78@81.

**Omaha:** Demand and supply good; trend strong; $80.

**Louisville:** Demand fair; trend firm; supply good; $85@90, sacked.

**Cincinnati:** Demand good; trend strong; supply fair; 60% digester $79, Cincinnati.

### VEGETABLE & ANIMAL FAT (HYDROLYZED)

**Ft. Worth:** Demand extremely good; supply light; 4¾¢ lb., f.o.b. north Texas area.

### VITAMIN E FEED SUPPLEMENT

**Cincinnati:** Demand good; trend steady; any quantity in 100 lb. drums $1.50; in 25 lb. drums $1.55, freight allowed to destination.

### WHEAT GERM MEAL

**New Orleans:** Demand fair; trend easy; supply ample; $65@67, cottons.

**Buffalo:** Demand fair; trend steady; supply fair to poor; commercial grade $69, sacked, f.o.b. Buffalo.

**Minneapolis:** Demand good; supply tight; up $1 to $55, jutes.

## EGG INDUSTRY

(Continued from page 1)

chicks, or they'll decide to become increasingly involved in the egg production business themselves. An idle feed mill uses up capital, too. . . .

"Counter-balancing the apathy on the part of the average farmer to start chicks in 1960 will be the supply of speculative capital for large-scale ventures. It never seems to entirely disappear, even in the face of egg prices which experienced poultrymen recognized as unprofitable. Each section of the country has these entrepreneurs, although they seem most prevalent now on the west coast. New enterprises continue to open up, and some of those which have folded manage to continue in operation through new investor-financing."

Francis Kutish, ag economist at Iowa State University, was among those warning farmers against "over-adjustment" in egg production. If farmers stick with their February intentions to raise 9% fewer egg-type chickens than last year, the number raised this year will be the smallest on record.

Egg prices this week were around 22¢ doz. at farm markets of Iowa. Mr. Kutish said they'll probably move above the 1959 April and June lows, and they're likely to increase seasonally after early summer. However, poultrymen in Iowa cut their orders for chicks this year to 45% less than they bought as of January, 1959. For the nation as a whole, the cutback was 33%.

If egg prices increase as expected next summer and fall as a result of the pullet cut-back, producers then will likely buy more chicks in 1961, and this could result in an over-adjustment in the other direction.

### Early Chicks Urged

Mr. Kutish pointed out that the premium this year is on early 1960 chicks—those coming into production soon enough to cash in on the good egg market of 1960 and early 1961. This indicates that many midwestern producers in particular may be caught with depleted flocks when egg prices are good. By over-correcting for the 1959 price drop, they may be cutting themselves out of an opportunity to recover some of the loss sustained earlier.

The Purdue University extension service also issued a special statement advising established poultrymen to continue with theiir customary number of birds. Excessive swings in either direction, it was noted, lead to a "feast or famine" situation and not to the stability desired.

Only 75% as many egg-type chicks were hatched in the U.S. during the five months of September, 1959, through January, 1960, as during the same months a year earlier. And the February hatch was estimated to be down even more.

J. W. Sicer, extension poultryman, said contacts with hatcheries in Indiana indicated low hatchings would continue through at least March since eggs are not in the incubators.

"A continuation of this rather drastic cut in chick hatching could result in a marked decrease in the number of layers on farms the last half of 1960," said Mr. Sicer, "and even in excessively high egg prices.

"Previous experience, however, indicates that any change in number of chicks hatched is seldom fully reflected in the number of layers on hand six months later.

"The cushion is the culling of laying flocks," says Mr. Sicer. "When prospects are for good egg prices, poultrymen frequently hold onto their old hens longer than would normally be the case."

Data released from the USDA indicate the laying flocks now on farms already contain a higher percentage of older birds than in recent years. "The cushion, therefore, is not so deep as it has been previously," said Mr. Sicer.

### "Stick With It"

Dr. Glyde Marsh of Ohio State University noted that poultrymen every year have heard statements like these: "This is no time to get out of the egg business. Things may look bad right now, but they are certain to get better." Poultrymen have tended to discount these statements. However, this spring, said Dr. Marsh, things are different. With the indicated production cutback and prospects for higher prices, poultrymen who have been disgusted enough not to plan to replace their flocks should reconsider, he said.

Dr. William Dankers of the University of Minnesota, noting the prospects for a healthier egg business, warned that producers should get chicks early. He said that if egg prices recover soon and rapidly, there may be too many late chicks.

The storage load of eggs is still at a high level—which tends to work against price recovery, he said. But the downward trend in egg production should soon result in a storage load no higher than a year earlier, and maybe lower.

Dr. Dankers said that this is a good time "to brace up and stick with it" in the egg business.

### Cutbacks "Unrealistic"

Mr. Turnbull said that the sharp cutbacks in hatchery operations in January and February were in line with sales, but both were unrealistic. These two months are not important quantity-wise in the annual production picture. Reductions in January-February can quickly be offset by gains later. However, Mr. Turnbull said, during recent years at least, January has played the role of a bellwether month and pointed the general direction of the season.

The early reductions of 30-40% no doubt point the direction the hatch will take, he said, but they do not necessarily set the pace.

The January-June hatch will be off, but not the extent of the early declines. "Such a sharp cutback would

produce a veritable egg famine," he commented, "and that is just not going to happen. Chick demand soon will start its corrective action if it has not already. If accompanied by a rise in egg prices, the demand could extend on through May."

Mr. Turnbull said he feels the best egg market performance will arrive on the wave of the usual Easter flurry.

He went on to say that breakers must commit themselves soon. Storage stocks have been large, but sooner or later they will have to operate on a steady basis. Their action could become quite aggressive should it appear that the heavy early cutbacks are reaching into March.

## GRAIN BANK

(Continued from page 1)

now storing government grain," Mr. Siler said. "Some day the government's plan will be so modified as to make it less attractive to many. This will make just that much more storage available for grain bank merchandising. . . .

"Grain banks have become, at least in the Midwest, a commonly accepted merchandising technique.

"A feeder's cost of producing 100 lb. of pork, a dozen eggs or 100 lb. of milk will ultimately decide whether grain bank merchandising has a legitimate place in today's and tomorrow's feed and farm supply business," said Mr. Siler, who works in sales promotion with the 3,200 Purina dealers who have grinding and mixing facilities. "We frankly feel that grain banks are increasing in number, they're here to stay, and they have come of age."

Mr. Siler listed grain bank advantages for the dealer. These include such things as: (1) more business from present customer, (2) attracts new customers, (3) ties customers to you, (4) leads to milling efficiency (scheduling of production and delivery), (5) helps get proof records on feeding results, (6) "combats" mobile milling competition, (7) is more profitable.

For the farmer, he went on, it (1) saves labor, (2) saves time, (3) saves grain, (4) is more convenient, (5) requires less farm storage, (6) improves feeding efficiency, (7) simplifies record keeping, (8) is more profitable.

While grain banking can be a sound sales builder, Mr. Siler cautioned that "a dealer with a grain bank can lose his shirt unless he's set up on a business-like basis."

He advised:

1. Set up a definite grain bank policy and then stick to it.

2. Set up whatever specialized bookkeeping that may be required.

3. Merchandise your grain bank by printing your policy in booklet form.

4. Underwrite your grain bank with a real sales program.

5. Prove the soundness of your grain bank program with proof of profitability for the feeder.

Mr. Siler went on to offer suggestions on various points to be considered in setting up a grain bank policy. These include: (1) kind of grain accepted, (2) grain quality standards, (3) disposition of sub-standard grain, (4) commingling grain, (5) invitation to farmers to inspect grain, (6) amount that can be deposited, (7) converting ear to shell corn, (8) moisture and shrink adjustment, (9) charges (for grain hauling, shelling and/or cleaning, drying, storage, handling, insurance, shrink, grinding and mixing, bulk delivery), (10) withdrawal of grain unprocessed, (11) handling of overdrafts.

Many dealers, Mr. Siler said, feel a grain bank service sells itself. However, most successful ones have been promoted by aggressive managers. Methods which have been effective include a market analysis, a kick-off dinner and informational folders.

"Many people are beginning to say that the farmer cannot afford NOT to participate in a grain bank program," Mr. Siler said. "Last year the Indiana Grain & Feed Dealers Assn. worked out some detailed examples, in which they figured a farmer's cost of handling 10,000 bu. of corn stored and ground on his farm versus that same 10,000 bu. if it were stored and processed in a grain bank.

"This comparison of costs actually came out 4.1¢ per bushel in favor of the grain bank. However, even if it had come out exactly the same, I'm sure the balance would be tipped in favor of the grain bank because of the many added advantages that are hard to figure into any cost picture —convenience, better records and more time to adequately supervise more units of livestock and poultry per man."

Operation of a grain bank was the main topic during a panel discussion held following a group luncheon. Three millers told of their limited experiences with the new development. The millers were Thomas Abbott, Richardson Milling Co., Hamburg, N.Y.; Donald E. Mattison, James H. Gray Milling Co., Cattaraugus, N.Y., and Howard Carver, Conewango Valley Mills, Conewango, N.Y.

Other speakers who appeared on the program included Austin Carpenter, secretary of the Eastern Federation of Feed Merchants, who reported current state and national legislation under consideration and which would affect the manufacturing and retailing industry.

Hal Munzesheimer, M-M-C Co., Buffalo, was the luncheon speaker. He presented a travelogue talk, based on his observations during a recent business trip to several Mediterranean countries.

"Merchandising and salesmanship" was the topic of a talk presented to the group by Fred Herman of the Dale Carnegie groups.

The meeting was presided over by Marrill Gares, Randolph Feed & Supply Co., East Randolph, N.Y., president of the association.

Mrs. Virginia C. Mattison was introduced as the new secretary and treasurer of the association. She succeeds Mrs. Gustave Bentley, who resigned last fall.

Allied trades representatives were hosts at a cocktail party following the close of the afternoon session.

## WIRTHMORE

(Continued from page 1)

organization. He said no changes in personnel at the retail stores are contemplated.

"This move represents a substantial increase in the distribution of Wirthmore feeds in New York," Mr. Bond said. Feeds will be shipped to the newly acquired stores from Wirthmore mills at Olean, N.Y., and Toledo, Ohio, and from the company's New England plants, according to Wirthmore officials.

## FIRE

(Continued from page 1)

Gruver and Spirit Lake were unable to stop the blaze which began in the basement of the plant at about 2:15 p.m. However, firemen kept the fire from spreading to nearby property.

Cause of the fire is still unknown. There were no casualties.

The value of the land, buildings, equipment and inventories was estimated in excess of $500,000.

In addition to the loss of the buildings, approximately 1,000 tons of feed ingredients were destroyed. Also lost were several hundred tons of finished feeds as well as all of the feed mixing machinery.

A railroad car full of ingredients on an adjacent siding was also completely destroyed and the nearby mill office building suffered extensive smoke damage. A fleet of trucks stationed at the plant was removed without loss.

The plant and office employed 35 persons. Company officials said it was too soon to comment on whether or not the plant would be rebuilt.

The sales office services were immediately reestablished in the Gardston Hotel in Estherville and business was carried on without interruption.

The firm emphasized there will be no delay in serving customers in the Estherville area. Feed will be trucked from three of International's Supersweet plants located at Des Moines and New Hampton, Iowa, and New Ulm, Minn.

## SWINE

(Continued from page 6)

more pigs to more than pay for your trouble. Bulk isn't important in the ration you hand feed. And, with hand feeding, you also can use corn silage efficiently. Be sure to supplement it properly with protein. If you use grass silage, be sure to supply an energy source, like corn."

Disease-free management will help eliminate repeat breeders and nonbreeders, Dr. Speer said. Production can be increased without any proportional increase in cost by buying for breeding herds only animals that have been tested and proved clean of major disease that affect reproduction.

Dr. Self pointed out it costs about $6.30 to feed a gilt or sow for 21 days. "Add another $2.10 for overhead costs of keeping her and you've lost $8.40," he said. "Even if you were to get an average litter of 7.2 pigs at the next mating you'd have to add $1.16 as the extra cost of each of her pigs as compared to the pigs from the gilt or sow that settled at the first service. And sows that had no breeding troubles as gilts may fail to breed later because of such troubles as cystic ovaries, blocked egg tracts or adhesions. Let the failure to breed be your warning. Don't keep them for a repeat breeding."

Time of mating makes a difference in litter size ranging between 5 and 11 pigs, Dr. Self added. Usually females bred in the first 1½ days of the heat period will produce the large litters. Length of the heat period may vary from 40 to 65 hours. "Watch your gilt and sow herd closely and see that each is bred as early in the heat period as possible," he said.

Dr. Speer pointed out that hot weather lowers the conception rate. High temperatures seem to reduce the breeding capacity of both sows and boars. If the animals are kept cool all summer with a water sprinkler in their pens or lots, producers will get more pigs per litter from summer matings, Dr. Speer said.

And, Dr. Self added, the age of the dam makes a difference. A gilt continues to shed more eggs in each succeeding heat period for the first four or five heats. Some tests show that waiting to breed your gilts until after the first two heat periods have passed results in an average of about two more pigs per litter than one would get by breeding on the first heat.

Dr. Speer added that producers need to be careful about the time they breed back sows whose pigs have been weaned at 3 weeks of age or less. Some sows tolerate early weaning better than others. Others may have cystic ovaries and will produce fewer eggs at the first period following early weaning.

Dr. Speer suggested that farmers weaning pigs early "experiment" with their sows to see if any of them tend to have smaller litters than usual when they are bred back at the first heat following early weaning. "Keep records that enable you to hold such sows back for breeding at the second heat period. Weaning at 10 days to 2 weeks," Dr. Speer said, "causes a certain percentage of sows to have cystic ovaries."

Dr. Catron listed strong national organization as the first need of the swine production industry.

He said that he had in mind an organization with full producer participation and capable "objective" leadership. Such an organization would be made up largely of producers but should probably include some representation of the packing and feed industries and of the nation's educational institutions. He cited the American Dairy Assn. as a type of organization that could help the swine production industry "move ahead as it should in the coming years."

Dr. Catron also pointed out that important production improvement can come with further research on controlled reproduction in swine. Fundamental studies going on now at Iowa State University on the breeding cycles, embryonic survival of pigs and controlled birth of pigs can lead to important improvements in regularity of breeding, litter size, vigor and more efficient and uniform management and marketing of hogs. "Findings that will effectively control breeding times," he said, "will open the way for widespread practicing of artificial insemination of swine."

He said the swine industry needs to put greater emphasis on production testing of sows as well as boars. "Sow testing should be done on the farm. This will enable the farmer to select for large litter size and heavy milk flow. The testing of the boar is valuable in selecting for rate of gain, feed efficiency and lean meat production, but it tells only part of the story of the actual hereditary influences on more efficient hog production.

"There's still a need for more research on swine housing, equipment and systems of production," Dr. Catron said. "Farmers going into the newer methods of swine rearing have many questions that need answers if they are to carry out these new developments profitably."

He emphasized the need for more research on the inter-relationships of genetics, nutrition, environment and management on the control of swine diseases.

"There is no reason," he said, "why disease-resistant strains of swine cannot be developed as disease-resistant strains have been developed in poultry. And there is an important practical problem for swine producers who have to determine the changes they should make in a ration that's suitable for a farm with a low disease level to make a ration that's profitable on a farm with a high disease level."

### Names Four Needs

Dr. Catron's final four items on the list of needs for the swine industry "must all be taken as one big package," he said, "because they depend on each other.

"First of these needs is a better grading system for swine reflecting carcass leanness and quality," he said. "This takes research as well as educational and governmental action. The present live grades of swine don't reflect accurately the actual percentage of lean cuts of meat. This is the big road-block in the way of buying live hogs on a strict quality basis. The live grades still don't tell the full quality story."

When the better grading systems are developed, Dr. Catron said, the next reasonable goal is consistent dollar incentives, paid by the live hog buyer, for producing lean, quality meat.

Next, Dr. Catron said, "this will have to be followed by a stabilization of market hog receipts throughout the year, with year-around prices that are profitable for the efficient swine producer. Multiple farrowing offers the means for accomplishing this."

The final need is improved retail merchandising of a standardized, high quality product, he said.

"Your decision on how much housing you need for growing-finishing swine depends upon how big a part hogs play in your total farm income

and how well you like hogs," Dr. Hazen told the group.

Housing is used for growing-finishing swine—50-200 lb.—because the producer believes it provides a better environment for efficient hog production, he said.

"From April to October in Iowa the natural environment is favorable to hog production," he said. "The basic building needs for this period, recognized by most hog producers, are a roof to shade from sun and protect from the rain and a wall to protect from the wind. Besides protection from wind, rain and sun, research has recently shown that hogs need some control of temperature. In summer, a sprinkler provides this."

Starting from these four fundamentals, Dr. Hazen added, many hog producers now combine the three fundamental shelter facilities by building a shed open on one side. "Bringing the pigs closer together in the shed raises a sanitary problem," he said. "Hog producers find it pays to use a concrete floor in the shed and in front of the shed.

"With this kind of housing the practical minimum of floor space is 15 sq. ft. of concrete for each hog, one-half under the roof and one-half outside," Dr. Hazen said. "This open shelter plus concrete floor, if contracted, would cost about $15 per animal capacity, without equipment. The building will stand for 20 years, but don't make the mistake of depreciating it on the basis of its structural life. Its functional life will not be nearly that long—perhaps 10 years."

Winter in Iowa is not naturally favorable to growing-finishing swine, Dr. Hazen said. The hog's reaction is literally to "gobble up" the profits to keep warm. Some farmers are closing their sheds on the fourth side. This is a "complete confinement" building, but it won't solve the weather problem unless it actually changes the environment. This requires insulation, ventilation and artificial heat. So, Dr. Hazen pointed out, the farmer going to complete confinement production has to "go all the way to get the benefit he wants."

### Additional Costs

A producer, going into confinement production, will find his shift from three walls to four reduces the minimum area of concrete floor to 10 sq. ft. per animal, he said. This brings his building shell cost down to the same figure as that for the open shed with the concrete floor inside and out. But he must add mechanical ventilation which will add about $3 per animal capacity. Insulation will add another $4 per animal capacity, and a heating system will add $2, bringing the total cost of this building to $9 more per animal capacity than the cost of the shed. There'll also be under $1 of added operational cost per animal capacity, Dr. Hazen added.

"If you get 10 years' use out of this bulding, it'll cost, counting interest on your investment, about $1.10 more per pig than the open shed cost you," he noted. "You will recover that cost through such advantages as the removal of the setback that comes when confinement-reared pigs are shifted to an outdoor growing-finishing lot.

"You will use less bedding and you'll be able to take advantage of the labor economy of mechanical cleaning and feeding equipment," Dr. Hazen said. "Current research at Iowa State University with growing-finishing swine in complete confinement indicates that these pigs get to market about a month earlier than pigs finished outdoors and use 75-100 lb. less feed, depending on the severity of the winter. Mechanization reduces labor time to an average of only 30 minutes per head during the growing-finishing period."

Danish research, Dr. Hazen said, indicates that the confinement-reared pig may produce better meat. The pig outdoors uses some of his protein for heat. The confined pig with temperature controlled uses more of his protein to produce meat, he explained.

The faster finishing in confinement and the year-around use of the facilities makes it possible for the farmer to produce three pigs in the time he formerly took to produce two. "But," Dr. Hazen warned, "remember that the overhead cost of the building and equipment continues no matter whether it's used. To be most economical it must be used to capacity for most of its 10-year functional life. If not used to capacity, at present prices, you would need to save about 30 lb. of feed cwt. of gain in order to pay for the added investment in complete confinement. Profits begin on savings above that."

### "Disease-Free" Swine

Two laboratories for producing "disease free" swine breeding stock are in operation now in Iowa and others are planned for the near future, Dr. M. L. Spear, Iowa State veterinarian, said.

More than 20 swine herds in the Grundy and Marshall County areas are being started on this program, he said. They include both commercial and purebred herds. Dr. Spear said they will carry out production testing along with their certified health program for swine.

"Nebraska field work, started in 1957, showed that hogs of the same genetic stock would grow faster, have more marketed pigs per litter and show better feed efficiency under the 'disease-free' pig program," he said.

Nebraska tests in the pens of commercial hog men proved they could produce hogs free of virus pig pneumonia, atrophic rhinitis, swine dysentery, transmissible gastro-enteritis and nonspecific enteritis, Dr. Spear said. Through vaccination and blood testing they can also control hog cholera, brucellosis, leptospirosis and erysipelas. Nearly 600 litters of "disease free" pigs will be produced in the spring of 1960 in Nebraska, but will not yet supply the demands of Nebraska hog men, he noted.

### "Repopulate" Farm

The "disease-free" project enables a farmer to "repopulate" his farm with aseptic pigs—pigs that are entirely free of five major diseases and that have had no known opportunity to contact any other disease, Dr. Spear said.

The original pigs for the "disease-free" farm herds are obtained by surgery in sealed, aseptic operating units two to four days before normal farrowing. They are reared in sterile surroundings at the laboratory until they are 4 weeks of age. At the age of 4 weeks they are placed on farms from which all swine have been removed for at least six weeks.

They are permitted no contact with neighbors' hogs and the farmer practices good sanitation and management. These pigs are normally vaccinated against cholera and on some farms it is advisable to vaccinate against erysipelas and leptospirosis.

Such stock, raised to maturity, is kept and used as brood stock. Their offspring come by normal birth. When the producer wants new breeding lines, he obtains them from the laboratory or other certified healthy herds like his own. The stock from these "disease-free" herds is used to repopulate other farms where disease has become so serious the owner is ready to move out his whole herd and start with new stock. The disease-free stock breaks the disease cycle often perpetuated by apparently healthy hogs which may actually be disease carriers, Dr. Spear said.

### Questions Answered

Questions following the conference opened with, "We read a lot about the Wessex Saddleback hog. What about it?"

Dr. Self replied, "I saw some of these hogs in their native home last spring. The breed has a reputation for good growth rate there and has deficiencies in carcass from the standpoint of the people there."

Dr. L. N. Hazel of Iowa State asked, "Why don't we have some of the Wessex saddlebacks entered at the boar testing stations? This is the best way to see what they can do."

Dr. Hazel urged any in the audience or who knew anyone who had Wessex stock to enter it at one of the boar testing stations to get records on it.

"Do disease-free pigs resist diseases other than those from which they are specifically free?" was the next question.

Dr. M. L. Spear said these pigs do develop immunity to many diseases. "They are highly resistant to influenza and have had no respiratory diseases. It appears as if their immune-body system has not been worn out in early life. In five generations in Nebraska, they have shown strong resistance."

### Feed Efficiency

"Does anything indicate fat hogs have better feed efficiency than lean hogs," was answered by Dr. Hazel, who reported that one of the extremely meaty animals coming off a recent boar station test required less than 300 lb. of feed per 100 lb. of gain. Managers of boar testing stations at Ames, Ottumwa and Ida Grove said the average of all animals they tested seemed to vary from little if any difference in feed conversion per pound between the fat and the lean types to slightly better conversion by one kind or the other at different stations or times. Dr. Hazel said his research results indicated the meatier pig required less feed per pound of gain than fat types when all were full-fed complete balanced rations like those in the boar stations.

Dr. Hazen was asked how much the feed saving was for most efficient lots of pigs tested in complete confinement for the growing-finishing period, and what was the shortest time to market. He said the shortest time to market was made by a daily gain of 2.2 lb. as the average throughout the feeding period. Pigs on the confinement program ordinarily took 18-19 weeks from 50 lb. weight to 200 lb., and at a saving of 75-100 lb. of feed as compared to those fed in open shed management, he noted.

Patrick Luby, economist at Oscar Mayer Co., Madison, Wis., told the swine producers that the price margins between the livestock market and the wholesale meat market and between the wholesale market and retail market represent costs that arise through adding services to make pork more attractive to customers.

Mr. Luby explained that since these three markets are competitive markets, the margins can be regarded as measures of these costs. The margins widen as the prices of hogs on the livestock market go down (numbers of hogs going up). The packer "costs" on this basis would be represented now at about $1 and the retail merchandising cost at about $4.

"This doesn't mean," he said, "that the packer is more efficient than the retailer, but that the retailer has to add more services to please his customer." He suggested, however, that it is hard for the packer to improve his efficiency when there is as much variation as at present in the receipts of hogs. He said the packers and retailers are doing a "right" job in "getting your product to market."

Augie Ring of the American Meat Institute predicted that in the next few years there will be still more emphasis on retail meat merchandising. "Packers and retailers are shifting emphasis to stress nutritional values in meat," he said. "Retailers are expected in the future to exploit the possibilities of many different kinds of cuts that can be made from the same pork—total of 36 different cuts available from the loin, for instance."

He suggested restoration of prestige to pork. "We have played too long in a joking way when we say, 'dirty as a hog,' and we have also spoken of pork as a 'poor man's meat.' That doesn't help pork."

## TOP OF THE HOPPER

(Continued from page 2)

enough for humans. However, one type of animal food is satisfactory, and that is monkey food. At present there is no other single source of food that would provide a complete ration for humans. Thus, the feed industry might be called upon to make "monkey food" to be stockpiled for feeding to humans in case of disaster.

Dr. Engel said that this type of food might also be considered for use in helping to feed undernourished people in other parts of the world. He suggested that firms which are in both the feed and food business might be especially interested in the possibilities of making "complete-ration" foods for humans which would be similar to some animal foods.

**THE PAST SEVERAL YEARS** have been the age of additives in the feed business. One nutritionist thinks that "subtractives" also will be very important in the years ahead. He has in mind possibilities of learning more about growth inhibitors in feedstuffs and then removing, or "subtracting," them from the material in processing.

**MOST OF THE LARGE CATTLE** feedlots which have their own mills are not now feeding pelleted rations, reports indicate. Apparently they do not feel the extra cost is worthwhile in their operations. However, a good many commercial mills are said to be selling pelleted roughage or complete rations to cattle feeders as well as lamb feeders. Handling and labor savings as well as nutritional advantages are mentioned as reasons.

Another report is that where complete pelleted rations are being fed to cattle, most of the operators are feeding some long hay along with the pellets. They indicate that performance is better if the cattle get at least some long hay.

**SOME FEED MEN** in at least parts of the Southeast are concerned that not enough farmers in their area can be persuaded to get into hog production. Many farmers who have traditionally been cash crop producers have not been very interested in getting into livestock production. If these farmers do not go ahead and produce swine, the feed men say, more packers—unable to get enough hogs for their plants in their own area—will be setting up completely integrated operations and providing feed from their own mills.

**A FEED COMPANY NUTRITIONIST** reports that his company has done some work with a hormone which, under his experimental conditions, resulted in improved egg production by laying hens. He thinks that the improvement comes primarily through prevention of broodiness. Also, he said, estrogenic injections might help prevent broodiness.

## MARKETS

(Continued from page 2)

Cottonseed meal has advanced an additional $2 ton, while soybean meal remains unchanged to 50¢ ton weaker. Decatur soybean meal is making the southeastern market over that of the Mississippi Valley mills. Practically all citrus processors are either on slow time or have ceased operations until Valencia processing starts, causing a tightness in citrus pulp, with many processors advancing their prices to $35 ton, f.o.b.

### South Central

Feed manufacturers reported business as being about on a par with that of the week earlier. The weather moderated but fresh snow and unfavorable road conditions resulted in a mild down-turn in mill door trade. However, carlot business improved enough for mills to continue on a 4- to 5-day operating basis.

The wet corn problem is a serious one and farmers are feeding corn at a fast pace to the detriment of formula feed sales. Farmers are reluctant to sell moist corn at a discount under the loan and are looking for opportunities to step up disposal through increased feeding operations. Reports are current that the area is being searched for feeder hogs.

During last week, dairy and cattle feed demand got some help from snow covered fields and pastures. Hog supplements did very well also. In general, business continued to mark time waiting for the spring upturn in feed demand to make its appearance.

### Ohio Valley

The unseasonably cold and snowy weather that prevailed last week throughout the Ohio Valley continued this week to increase the difficulties of deliveries of manufactured feeds.

Also, with many miles of country roads impassable, hundreds of farmers were unable to drive their trucks to neighborhood feed mills or other retail outlets, and had to depend largely on stored farm crops or reserve stocks and feed supplements.

Because of the fall-off in egg production and the severe hampering of farm pickups of eggs in many snowbound areas, price increases up to 2¢ doz. were noted this week at wholesale markets. But, despite the delivery handicaps, area manufacturers, for the first time in several months, reported a definite upward trend in demand for feeds and supplements of all kinds, with evidence developing of a renewing interest in production by hatchery operators.

### Pacific Northwest

Formula feed movement was fully maintained throughout Oregon, Washington and Idaho this week. Feeders and mixers reportedly bought small lots of feeds on an immediate-use basis. Feedstuff prices followed a mixed trend throughout the trading period, which was mostly slow, according to trade sources at Portland and Seattle. General demand for feedstuffs was considered slow, despite continued unfavorable weather conditions. Pacific Northwest alfalfa hay trading was slow during the period. Much colder temperatures in western Oregon and Washington failed to stimulate additional buying interest during the week. Good quality alfalfa hay appeared in less plentiful supply, but was still quoted within a $30@40 ton range, baled, delivered Portland and Seattle feeding areas.

### Mountain States

Formula feed men in this area are happy again,— they are all pretty busy. Everything is still holding its own, the reason being that the sales volume is up a good deal over the previous week due to the after-effect of a large storm in this area. The sales volume is also a little better now than a year ago at this time. Dairy feed and cattle feed are the strongest in demand at the present time, and everything being bought is for immediate sale.

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## Vote on Assessment

SALEM, ORE.—Registered broiler growers throughout the state will vote between March 14 and 26 as to whether they want to eliminate the Oregon Fryer Commission assessment.

The referendum results from a petition of growers to remove the 17/100th of a cent per pound assessment which has been in effect since growers formed the commission two years ago.

## Michigan, S.D. Counties Emergency Feed Areas

WASHINGTON — An additional eight counties in Michigan and South Dakota were designated March 4 by Ezra Taft Benson, secretary of agriculture, as emergency areas where farmers, stockmen and dairymen can buy government-owned feed grains at current support prices.

The Michigan counties are: Alger, Chippewa, Dickinson, Iron and Marquette. The South Dakota counties are: Brule, Buffalo and Edmunds. Previously, 10 counties in South Dakota and three counties in Michigan had been designated as emergency feed areas.

The designations announced were made under Public Law 86-299 enacted during the last session of Congress. During the past year drouth reduced feed grain supplies in South Dakota and unfavorable weather, insects and plant diseases reduced the quantity and quality of 1959 feed grain production in Michigan, making these counties eligible for assistance under this act.

Public Law 86-299 authorizes the secretary to sell at current support prices any feed grains owned by the Commodity Credit Corp. to provide feed for livestock where he determines there is an emergency area as defined by the law.

Previously designated counties in South Dakota included: Brown, Day, Clark, Codington, Faulk, Hyde, Potter, Spink, Sully and Marshall, and in Michigan: Baraga, Houghton and Ontonagon. In all, 21 counties are now designated as emergency areas under this program.

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